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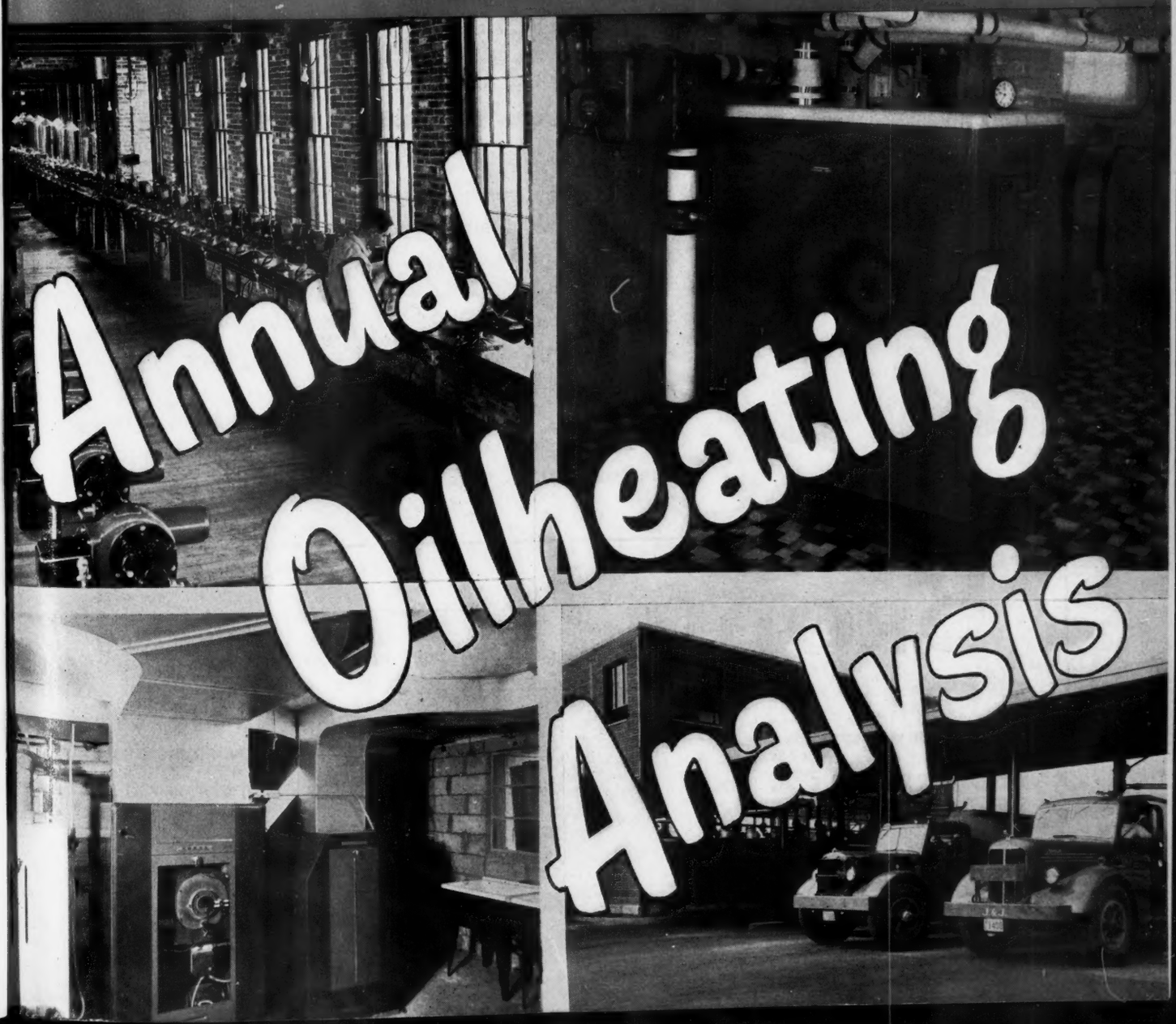
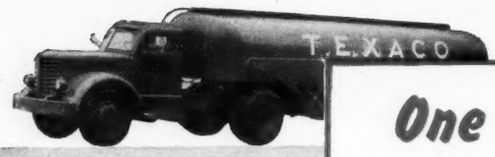
JANUARY
1949

fueloil & oil heat



Annual Oilheating Analysis



One of a Fleet of Texaco Airport Refuelers

— Equipped with Brodie Meters for Fast Accurate Gallonage Measurement

Dual fueling of transcontinental airlines imposes rigid and exacting requirements of safety, accuracy and speed. Refueling time must be held at a minimum—and overloading, spillage with resultant fire-hazard must be avoided. That is why so many airport and other types of fueling units employ dependable Brodie Meters equipped with Brodimatic direct-reading counters. Their unvarying performance insures fast, accurate delivery and measurement of total gallonage loads. In designing or revamping your petroleum tank trucks, be sure to specify Brodie Metering equipment. Write for data sheets, today.

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VOL. 7, NO. 9

fueloil & oil heat

JANUARY

1949

Names in the News

William H. Gearhart, named representative for The Mercoid Corp., Chicago 41, Ill., will cover the state of Michigan, seven counties along northern Indiana and the south side of the city of Chicago. His experience in the heating field dates back to 1932, during which time he has engaged in service work, sales, engineering and fueloil representative for several organizations. He entered the Army in 1942 and joined Mercoid when discharged in 1946.

Gerald J. Klopfenstein has advanced to the newly-created post of assistant to the vice president and director of sales, Bowser, Inc., Ft. Wayne, Ind. *James E. Doelling* has succeeded him as manager of the meter sales division. Mr. Klopfenstein joined Bowser in 1923, beginning in the company's inspection department and served also in production engineering, drafting, designing, planning and sales engineering. In 1947, took charge of meter sales. Mr. Doelling began with Bowser in 1937 as a draftsman in production engineering, later in sales engineering and, immediately prior to his latest assignment, was manager of the sales engineering division.

John E. Hansler, eastern regional field engineer, Delco Appliance Div., General Motors Corp., Rochester, N. Y., has been named west coast regional manager for Delco-Heat, Delco water systems and Delco Appliance electric motor sales. He joined Delco in

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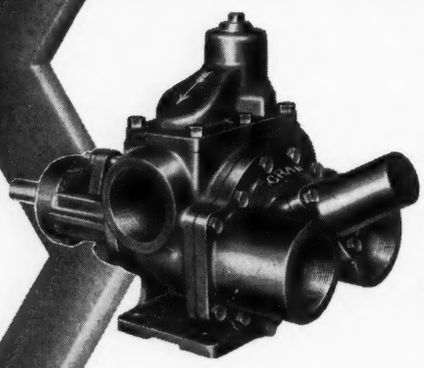
You're money ahead every minute a GRANCO Pump is on the job! With a GRANCO you get

LOWER INITIAL COST
LOWER INSTALLATION COST
LOWER MAINTENANCE COST
LOWER OPERATING COST
LONGER TROUBLE FREE LIFE

=LOWER COST PER GALLON



GRANCO Pumps handle all petroleum liquids efficiently, from gasolines to asphalts. Whatever your requirements, there is a quiet, compact GRANCO Pump that will do the job better.

TRUCK PUMPS

Model DEE Truck Pump (illustrated), specifically designed for tank truck mounts, gives you smallest size and lightest weight per gallon delivered. Compact, quiet, leakproof. Easiest to install. Reversible action and four ports make pump adaptable to any pipe hook-up. You fit the pump to the installation—not the installation to the pump. Never needs priming.

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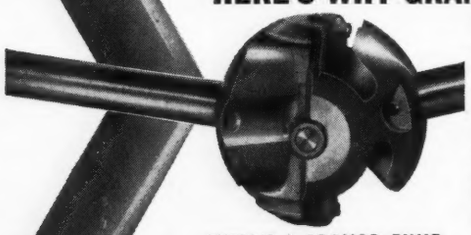
GRANCO PUMPS give unexcelled performance in Bulk Plant or Transfer Station work. High vacuum, high lift. Never need priming at start or finish of loading operations. No "bleeder" lines necessary. Shown at left, Model DEES—90 GPM GRANCO Pump with gear drive in oil-tight housing.

HERE'S WHY GRANCO PUMPS ARE BETTER!

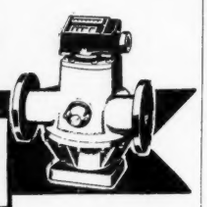


The exclusive, patented ball and squeeze action of the GRANCO spherical rotor—only moving part—provides direct positive expulsion from pump chamber into line of flow. Quiet, friction-free, no contact between rotor and housing—for better performance, longer wear. No gears, blades, scoops, valves or dragging and sliding parts.

THERE'S A GRANCO PUMP TO DO YOUR JOB BETTER

See your distributor, or write for full particulars. Sales and Service "at your service" throughout the nation.

Granco



GRANBERG CORPORATION
Oakland 8, California

Also makers of Granco Rotary Positive Displacement Meters

1933 as midwest regional field engineer, and in 1936 became assistant service manager for Delco-Frigidaire Division at Dayton. His experience in automatic home heating dates back to 1926.

Robert E. Wilson has been named Columbus, Ohio representative for Warren Webster & Co., Camden, N. J. He succeeds the late M. R. Hamlin, who died last August in an automobile accident. Mr. Wilson has had more than twenty years' experience in the heating field, with Rome Brass Radiator Corp. and since 1934 has been in the Cleveland office of Minneapolis-Honeywell Regulator Co. He has covered the Columbus territory for some time, and is well known to members of the industry there.

O. A. Glazebrook, Jr., partner in the New York stock brokerage firm of Hornblower & Weeks and *James I. McClintock*, prominent Detroit attorney, have been elected to the board of directors, Eureka Williams Corp., Bloomington, Ill. At the same time the resignations of K. B. Goddard, W. C. Rands, Jr. and M. A. Cudlip, because of the press of personal business, were announced, reducing the size of the board to seven members.

Louis H. Matthes has been appointed general sales manager, Air Conditioning Dept., General Electric Co., Bloomfield, N. J. As such he will be responsible for field sales activities, commercial engineering, national user sales and the customer sales divisions. Mr. Matthes, who first joined the company in 1921 as a test engineer at Schenectady, N. Y., transferred to the air conditioning department in 1947. Between times he was engaged in sales engineering activities and manager of the Beaumont, Texas office of the apparatus department.

Goes just so far . . .

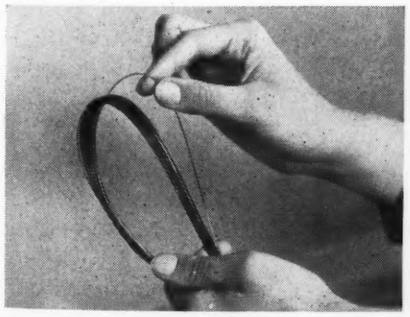
AS a wartime substitute for "A" coupons, bicycles were easy going downhill. But the long haul was a different story.

The same applies to "off-brand" motors sold during the postwar days of scarcity. Many reputable oil burner manufacturers bought them of necessity. Thousands of these motors have already slowed to a walk. Thousands more will weaken on the long haul.

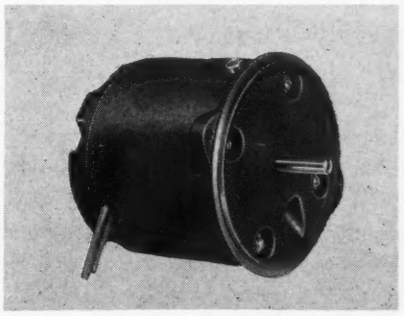
How many oil burners did you install with substitute motors?

At the first sign of trouble, replace doubtful power with proved Ohio Motors. Many of the first Ohio Motors built 20 years ago *are still in service.* Dependable performance explains why, through the years, one-third of all oil burners have been powered by Ohio.

Order Ohio replacement motors today from your oil burner manufacturer—direct from us if he cannot supply you. And specify OHIO on your next oil burner order—*for superior performance and complete customer satisfaction.* The Ohio Electric Mfg. Co., 5900 Maurice Avenue, Cleveland, Ohio.



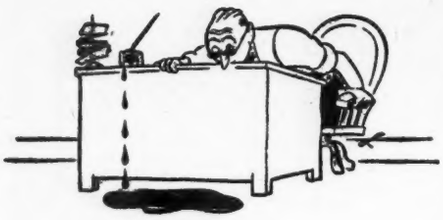
Top grade insulated wire increases oil burner motor life.



Ohio Motors are built to NEMA or other specifications, as desired.

ohio MOTORS

The motor customers write about *enthusiastically.*



Editorial Leaks

One of our dealer friends sank into the chair at the end of the desk the other day and inquired how the rest of the oilheating industry was doing. The report was that things had slackened considerably toward the end of the year and seemed to be back on the old seasonal sales curve. December never had been known as red hot oilburner sale month. Total business done this year was little more than half what it was in 1947.

The dealer wanted to know why. His sales were virtually the same as 1947 and it seemed reasonable to him that other dealers should have done at least as well. We guessed that sales were getting harder to make, and he agreed.

"It isn't quite as easy to get oilburner business as it was a year ago," our dealer agreed, "but there is no reason to take a licking on that account. The business is there, though it takes a little more work to bring it in."

We suggested that dealers as a whole hadn't yet gotten their sales forces organized to bring in the sales volume that flowed in rather easily a year ago. The industry needs more real sales effort.

"Call it sales effort, or anything you like," our dealer friend broke in. "I figure it on the number of prospects on our books. I don't mean names in the phone book; I mean qualified prospects. We first decide how many burners we would like to do in any year, depending on the number of good men we have, and the amount of fueloil increase we can take. Then we devote our effort to building a prospect list to yield at least that many sales.

"The number of prospects needed will vary with the times. Say we want to add 100 burners. In 1933 that would have called for a prospect list of at least 1,000 names. In 1947 it would have required about 200. In 1949 it will take 400 to 500 qualified prospects to yield 100 installations. Maybe some dealers can do better, and some not so well, but with our organization that's the way it works out.

"Any dealer who isn't getting the business he thinks he should have is neglecting his prospect list. He isn't adding new blood, and that is necessary to all life, animal or business. Any prospect list more than a year old is 75% dead."

We thought it was pretty hard to get salesmen to canvass. Doorbell ringing is frowned upon by most present-day salesmen.

"It isn't as hard to get salesmen to canvass as it is to get dealers to insist on it," our visitor continued. "A good salesman is interested in making sales because that is the way he makes his money. The best of them know that the only reliable way to keep a pocketful of good leads is to dig them out for themselves. Advertising can't be neglected but people who answer your ad will answer other peoples' ads. Every dealer should be sure his salesmen make a few cold calls every day, and the dealer or his salesmanager should go out regularly with each man to see how he handles those calls.

"The fundamentals of good selling haven't changed since the days when we were building this industry. The same methods we used then will work successfully today. The only difference is that too many of us are older than we were when we started. We are not quite so hungry as we used to be, and we don't feel the anxiety that drove us to every end to make a sale.

"Most of us feel we have served our time building our businesses, and now those businesses should support us. But they can support us only if we keep them strong—well fed. Our outfit eats new prospects like a kid eats candy, so we spend most of our time getting new names for the prospect list. It pays off."

◈

There has been discussion in these pages in recent months of the proposed Code of Fair Trade Practices for the retail oilheating industry in New England. It has been contended that such a code, though adopted only for New England, might be enforced in other parts of the country. Elsewhere in this issue is a part of a letter from a Federal Trade Commission official which states that the code is applicable only to the six New England states. We are glad to give voice to such an interpretation.

Any code that would be good for the dealers in New England probably would be equally good for oilheating men in other parts of the country. Conversely, if it were to prove burdensome to the rest of the country, it would not be good for New England. The chief objection has been to the imposition of a code on those who have not had an opportunity to consider fully its effect on them. Since these codes are voluntary, all dealers affected are entitled to express themselves. This now appears assured.

Full consideration of the code by dealers should include some reflection on how it may affect them. Few dealers consciously indulge in practices they know to be unlawful. However, any dealer may be called upon to defend himself from anonymous complaints brought against him under the code. Guilty or not he may have to prove his innocence. Not many dealers are so sure of the love and affection of all their competitors that they will trust them with their good name and reputation.

We are glad to be assured that the proposed New England code will not be extended to cover the rest of the country without full opportunity for all to be heard.

◈

At the end of every year as another January issue goes to press there is a temptation on the part of the staff to sigh deeply, feel a little martyred for the holidays we lost in work, and hope that the next one won't be as tough as the last. It never seems to work out. Each year there is an urge to make that Annual Analysis just a little more complete and comprehensive than the one before.

Besides the work of the staff, there are untold hours invested in this issue by individual dealers who have spent from a few minutes to an hour answering confidential questions on the details of their businesses. For the splendid cooperation and interest of those men we extend our sincere thanks. And to all our old friends and new we send sincere wishes for a prosperous year.

"IT SAVES US ABOUT 50 CENTS ON EACH FUEL DELIVERY"

Unless your company is now using VENTALARM signals 100%, the following quotation should be of great interest.

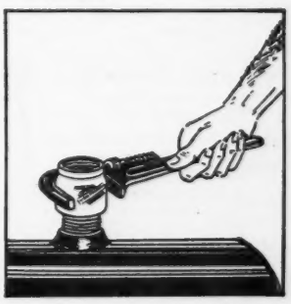
VENTALARM®
SIGNAL
EASILY INSTALLED!

On Oct. 6th, 1948, Mr. O. F. Minor of the New York Division of the Shell Oil Company Incorporated gave a public address before the Ohio Petroleum Marketers Association. The address was entitled THE "FORWARD LOOK" FOR PETROLEUM DISTRIBUTION. In dealing with the trucking phase, Mr. Minor made the following statement:

"The big improvements here will come through the speeding up of loading and unloading operations.

"One way in which we accomplish one phase of this is through the use of the VENTALARM on customers' fuel oil tanks. The alarm whistles while the tank is being filled and stops when the fuel reaches a safe top level. This relieves the driver of need to leave the truck several times to stick the tank, and it saves us about 50 cents on each fuel delivery."

The LC model VENTALARM signal is easily installed on old tanks. A quick compression fitting with bayonette lock eliminates any pipe threading. Takes only 15 to 20 minutes.



The LA model VENTALARM signal is installed on tank when new burner is being put in. Threaded top receives threaded vent pipe in usual manner. No extra time required.

Your executive decision NOW will save YOUR company MONEY!

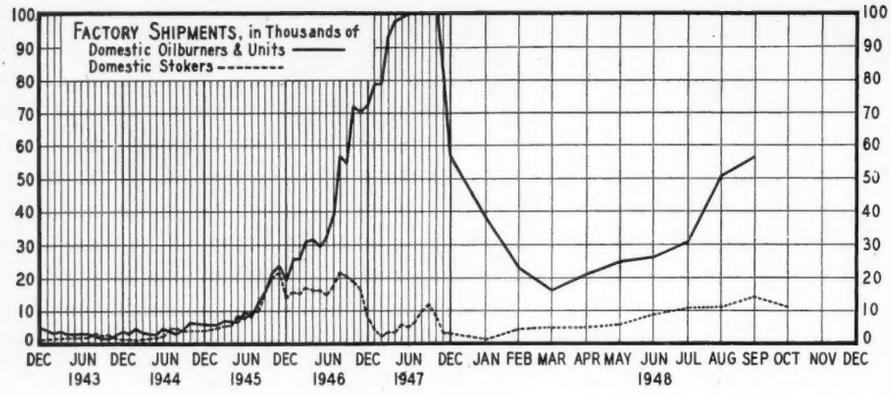
In stock at your favorite supply house

VENTALARM®

Whistling Tank Fill Signal

SCULLY SIGNAL CO., 76 FIRST ST., CAMBRIDGE 41, MASS.

Canadian Licensee — EMPIRE BRASS MFG. CO., LTD., London, Ontario

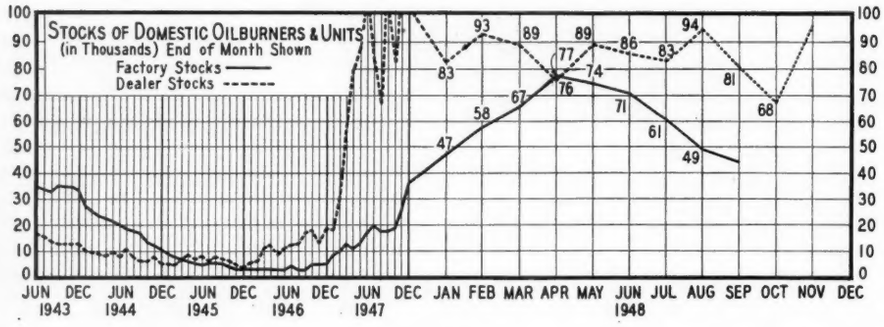

FACTORY SHIPMENTS, in Thousands of
Domestic Oilburners & Units
Domestic Stokers
DEC JUN DEC JUN DEC JUN DEC JUN DEC JUN DEC JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
1943 1944 1945 1946 1947 1948

Shipments of Oilburners and Units

(Including Exports)

Adjusted to include manufacturers other than the 152 reporting to Census Bureau, FUELOIL & OIL HEAT's estimates of shipments are:

	TEN MONTHS			OCTOBER		
	1948	*1947*	*Percent Change*	*1948*	*1947*	*Percent Change*
Conversion	44,090	105,172	— 58.1	241,471	841,140	— 71.3
Boiler units	5,534	6,871	— 19.5	32,345	51,027	— 36.6
Furnace units	10,343	21,217	— 51.3	73,047	163,125	— 55.2
All Domestic	59,967	133,260	— 55.0	346,863	1,055,292	— 67.1
Commercial	2,507	4,971	— 49.6	23,887	46,084	— 48.2
Total	62,474	138,231	— 54.8	370,750	1,101,376	— 66.3

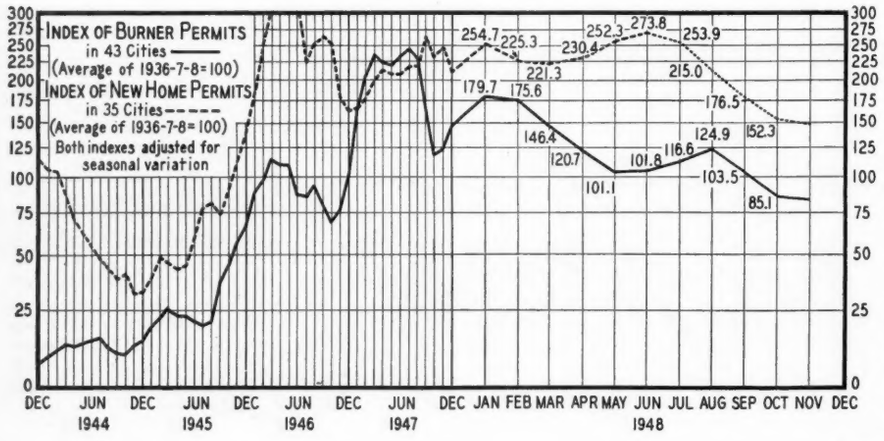

STOCKS OF DOMESTIC OILBURNERS & UNITS
(in Thousands) End of Month Shown
Factory Stocks
Dealer Stocks
JUN DEC JUN DEC JUN DEC JUN DEC JUN DEC JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
1943 1944 1945 1946 1947 1948

November Minimum Retail Prices: Key Dealers

	CONVERSION BURNERS	BOILER-BURNERS	FURNACE-BURNERS
Highest	$500	$1250	$1140
Lowest	200	350	425
Nov. Aver.	347	716	647
Oct. Aver.	348	705	617

Price Index: Conversion Burners: January 1940 is 100%

WHOLESALE				RETAIL			
Nov.	144.3	Six months ago	153.5	Nov.	144.2	Six months ago	148.5
Oct.	144.7	Year ago	143.1	Oct.	145.7	Year ago	146.4


INDEX OF BURNER PERMITS
in 43 Cities
(Average of 1936-7-8=100)
INDEX OF NEW HOME PERMITS
in 35 Cities
(Average of 1936-7-8=100)
Both indexes adjusted for seasonal variation
DEC JUN DEC JUN DEC JUN DEC JUN DEC JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
1944 1945 1946 1947 1948

Oilheating Trends

PRELIMINARY ESTIMATES of domestic oilburner and unit installations in November are 45,563, showing a seasonal decline from October, but not as much of a drop as looked probable at the start of the month. Totals for eleven months are 424,906. There are indications that the monthly figures on installations, while reasonably accurate in total have been showing too few new home jobs and too many conversions from other fuels. Some broader scale checks this month bring that conclusion, so a revision is being made. On the basis of the revision, present indications are that the eleven months' installations are divided: replacements of old oilburners, 84,180; new home installations 180,453, and conversions from other fuels 160,273.

BURNER STOCKS: Dealer stocks of domestic oilburners and units climbed sharply during November, ending the month at 95,787 where they had been only 68,792 at the start of the month. This abrupt change is not explainable by any measured factors. Apparently, dealers had made firm commitments with their factories for Fall shipments considerably in excess of their sales, and some of the shipments were late in arriving. On the other hand, it may indicate that stocks were pulled down sharply in October with the high pressure of last minute installations to get ahead of the cold weather, and have subsequently been allowed to build up. Factory stocks, on the other hand, continue their downtrend, reaching 44,290 at the end of September, the latest available figure.

NEW HOME FUELS: Reporting dealers from all sections of the country estimate that 55% of new homes this year were heated with oil, 21% with gas, and 27% with coal. This is probably reasonably accurate, although it indicates a far higher number of oilheating jobs than shown by the dealers' own individual operations, as set forth in the first paragraph of this analysis. Individual dwellings erected this year were approximately 800,000. If, as dealers believe, 55% of those are heated with oil, the indicated number would be 440,000. In the first paragraph we estimated for the eleven months 180,000 oilfired central heating plants going into new homes, which would point to some-

where around 200,000 for the full year. The difference between that figure and the 440,000 is represented by new homes getting space heaters or floor furnaces, and probably to some extent a too-high estimate by the dealers. The low level of gas heating is understandable from the number of gas utilities not now able to take new business.

By sections, the reporting dealers estimate new home fuels to be as follows: New England, Oil 75%, Gas 12%, Coal 13%; Mid-Atlantic, Oil 56%, Gas 26%, Coal 18%; Midwest, Oil 36%, Gas 26%, Coal 38%; Pacific Northwest, Oil 67%, Gas 3%, Coal 30%.

Gas utilities are able to take new home heating business in only 25% of the cities heard from, countrywide. There was a geographic variation in this with New England reporting 31% of gas utilities taking home heating jobs, Mid-Atlantic 26%, Midwest 21%, and Pacific Northwest 25%.

Since the close of the war gas utilities in 50% of the cities heard from have increased their rates for home heating, with geographic variations as follows: New England 67%; Mid-Atlantic 55%; Midwest 14%; Pacific Northwest 100%.

Among those utilities that did not yet get a rate increase since the war ended, 84% have cases pending with their public service commissions to get an increase. Thus while gas, particularly in the Midwest, has been looked upon as a decidedly low-cost fuel, there is every indication that it won't stay that way.

DEALER PROFIT FOR 1948: After all the vicissitudes of 1948, most oilheating and fueloil dealers will end the year with a profit. Estimating results for the year in early December only 8% of those reporting expect to show a loss. Expecting to show good profits are 41%, moderate profits 27% and slight profits the remaining 24%. No exact yardsticks were set up to measure these variations but it is clear that 68% are fairly well satisfied with the year.

COMPARATIVE FUEL COSTS: Because there has been a growing realization that fueloil costs are comparatively higher than the cost of other fuels, a simple check is made this month to roughly measure this difference. This is not a penetrating fuel cost study. None of the answers were weighted for size or relative importance, but simple numeric averages were used for each section. Countrywide, No. 2 fueloil is selling for an average of 12.8¢. Gas for house heating brings an average of 72¢ per thousand, lumping together all types of gas. Handfired coal, based on the type most commonly used in each market is bringing $19, nationwide, and stoker coal $15. On a Btu. basis in New England, for example, the best way to make comparison is by calculating the price per therm or the price for one hundred thousand Btu's. Making no allowance for difference in operating efficiences for various fuels oil costs 9.2¢ per therm, gas costs 13.1¢, handfired coal costs 8.8¢, while stoker coal costs 6.8¢. Jumping to the Midwest, where natural gas is largely

(Continued on page 145)

Oilburner* and Building Permits

OILBURNERS					DWELLINGS			
November		11 MONTHS			November		11 MONTHS	
1948	1947	1948	1947		1948	1947	1948	1947
676	671	1897	9030	Baltimore, Md.	130	399	3540	3059
..	..	..	..	Binghamton, N. Y.	10	10	138	103
..	..	..	..	Bloomfield, N. J.	5	..	..	..
..	..	..	..	Boston, Mass.	18	40	..	571
135	257	911	1609	Bridgeport, Conn.	..	..	..	..
..	..	..	..	Buffalo, N. Y.	26	11	..	54
..	..	..	..	Des Moines, Iowa	53	49	876	927
..	..	..	..	Detroit, Mich.	260	494	6424	8952
41	145	392	768	Elizabeth, N. J.	1	10	21	93
39	30	..	408	Freeport, N. Y.	..	..	..	..
..	..	..	..	Greenwich, Conn.	20	44	257	245
..	..	..	..	Hackensack, N. J.	0	2	..	34
119	242	1276	1740	Hartford, Conn.	..	..	..	..
25	25	184	471	Irvington, N. J.	3	13	..	36
..	..	..	..	Lynn, Mass.	5	9	159	110
43	..	..	..	Meriden, Conn.	..	..	..	..
230	300	1948	2764	Milwaukee, Wisc.	148	65	1698	1266
156	341	1175	2356	Minneapolis, Minn.	111	131	1272	1129
11	28	210	340	Montclair, N. J.	..	..	..	..
..	..	..	..	Morristown, N. J.	..	1	..	..
28	42	245	498	Mt. Vernon, N. Y.	..	..	..	..
125	145	..	..	Newark, N. J.	..	..	..	..
87	64	751	584	New Bedford, Mass.	..	..	..	..
64	75	..	1093	New Haven, Conn.	..	..	..	..
0	1	0	1	New Orleans, La.	..	..	..	..
13	52	134	395	New Rochelle, N. Y.	7	10	98	78
..	5520	..	50,838	New York City (total)	..	..	..	..
..	4787	..	42,477	Brooklyn-Queens	..	..	..	..
464	733	4055	8361	Manhattan, Bronx, Rchd	..	..	..	..
113	80	1236	884	Norfolk, Va.	36	58	550	747
0	2	11	14	Oakland, Calif.	..	..	..	..
78	439	944	2593	Omaha, Nebr.	29	83	..	832
9	14	158	269	Orange, N. J.	3	0	15	5
14	31	235	..	Passaic, N. J.	..	..	..	..
43	84	502	1111	Paterson, N. J.	6	3	102	61
774	1523	5876	..	Philadelphia, Pa.	..	..	..	..
..	..	..	..	Plainfield, N. J.	8	11	92	142
29	94	346	995	Portland, Me.	8	18	144	157
110	521	..	8463	Portland, Ore.	..	..	..	..
23	35	191	313	Poughkeepsie, N. Y.	..	..	..	..
64	94	569	1036	Providence, R. I.	12	9	175	141
..	..	..	..	Reading, Pa.	4	3	40	29
46	114	720	1533	Richmond, Va.	28	46	847	693
125	173	1526	3481	Rochester, N. Y.	..	..	..	..
45	51	304	345	Rockville Center, N. Y.	7	3	197	190
41	59	245	369	Salem, Mass.	..	2	113	42
121	376	1565	3037	St. Louis, Mo.	30	47	..	379
230	323	1453	3106	St. Paul, Minn.	62	87	..	993
97	151	..	907	Schenectady, N. Y.	..	..	..	..
..	..	..	..	Seattle, Wash.	89	164	..	1749
..	..	..	..	Springfield, Mass.	20	49	483	539
67	39	418	368	Stamford, Conn.	..	..	..	..
..	28	..	..	Syracuse, N. Y.	..	..	..	..
..	..	..	..	Trenton, N. J.	2	0	31	55
..	..	..	..	Utica, N. Y.	18	4	128	69
183	389	1579	3303	Washington, D. C.	..	..	..	..
..	..	..	..	West Orange, N. J.	9	9	145	86
27	26	210	326	White Plains, N. Y.	3	9	69	86
133	198	940	1281	Wilmington, Del.	8	8	110	97
..	169	..	1577	Worcester, Mass.	..	..	..	..
13	18	291	677	Yonkers, N. Y.	..	..	..	..
4641	7765	26,386	53,958	Totals	1180	1900	17,724	19,101
—40.2		—51.0		Percent Change	—37.9		—7.2	

*Permits are not total sales in each market since none are reported from suburban areas, which normally account for 20% to 60% of total sales in each market; nor are they an accurate index where enforcement is lax. Rightly used, however, they are a useful working index.

*TANKIT

INSTANTLY STOPS

A Fuel Oil Tank Leak

Easily Installed in 2 minutes!!

In just two minutes the steel band can be placed around the tank, the oil resisting adjustable sliding patch placed over the leak, and tension applied by the screw. The leak stops! "SIMPLE BUT POSITIVE!" Packaged in metal containers, Tankits can be used again and again.

Now you can handle a cellar FUEL OIL TANK leak as a simple service call.

Replace the tank at your convenience!!

Avoid

- **Costly Pumpouts**
- **Excess loss of service time**
- **Damage to cellars**
- **Lack of heat**
- **Loss of customers**

Successfully Used by Leading National Oil Companies.

List Price

$3.75 ea., lots of 1 or 2

$3.50 ea., lots of 3 to 11

$3.25 ea., lots of 12 or more

Write for Nearest Distributor

Qualified Jobbers and Distributors Considered

*Reg.
*Pat. Pend.

THE TANKIT COMPANY
Cedarhurst, L. I., N. Y.

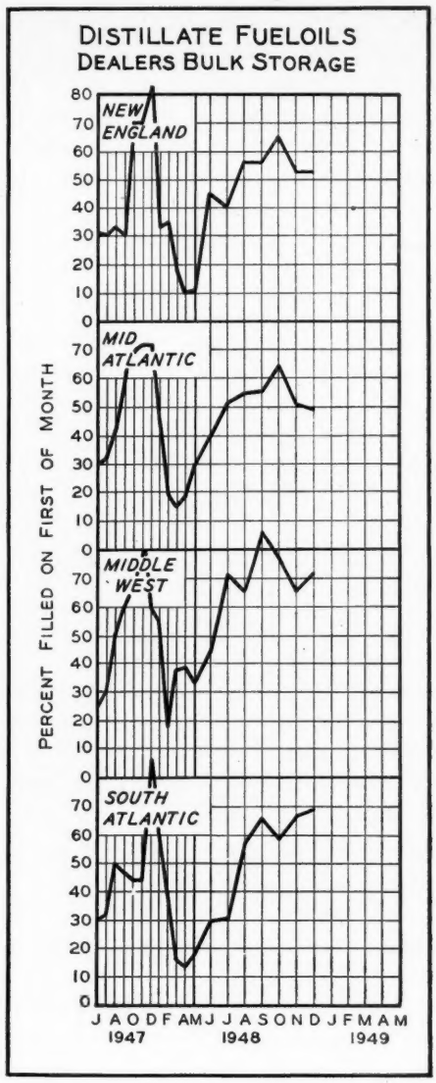
Fueloil Supplies

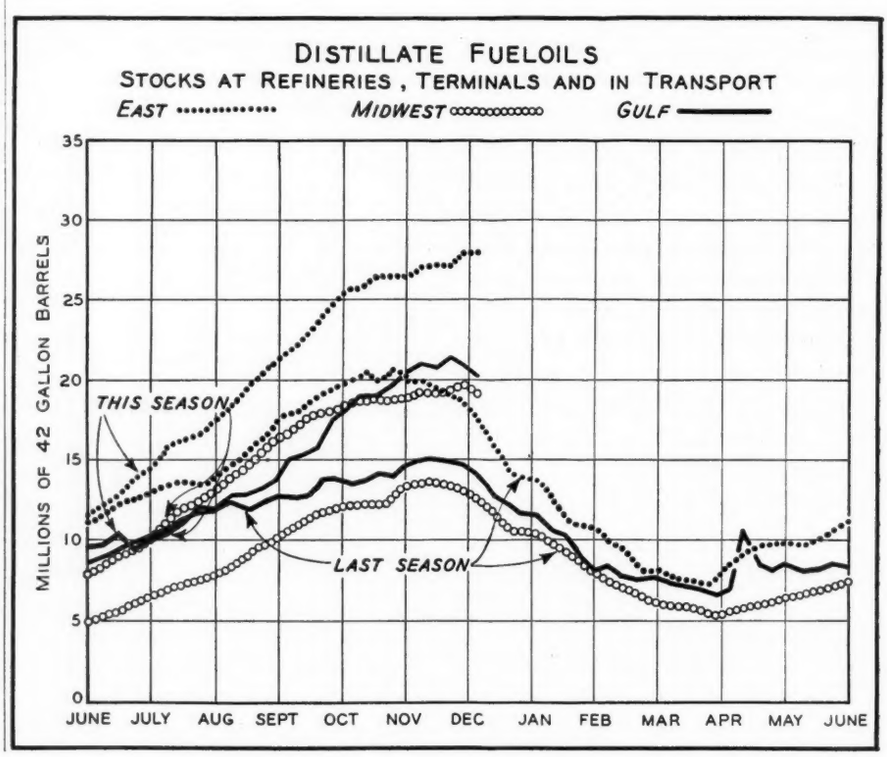
DISTILLATE stocks in the bulk plant tanks of fueloil distributors on December 1 had dropped to 57% of capacity compared with 58% the month before and 73% on December 1, 1947. Now that supplies are fully adequate it is unreasonable to expect that these local marketers would carry maximum stocks, since at present high prices they are costly to finance, and in some markets there is uncertainty over wholesale prices. Kerosene stocks, on the other hand, are approximateely the same as a year ago, with dealers more cautious about supply of this product.

DEALER STOCKS
(Thousands of Barrels)

	No. 2 or 3 Distillates	*No. 1, Range, Kerosene*
East Coast		
12-1-48	8,082	2,286
12-1-47	11,495	2,688
Midwest		
12-1-48	2,743	1,986
12-1-47	2,363	1,647
East of Rockies		
12-1-48	10,825	4,272
12-1-47	13,858	4,335
Percent Change	—21.9	—1.5

Distillate stocks at refineries, in primary storage or in transit on December 18, the latest available data, were 65,020,000 Bbls. in the area East of the Rockies, compared with 37,157,000 Bbls. for the corresponding week of the previous year, a rise of 27,863,000 Bbls., or 75%.


DISTILLATE FUELOILS
DEALERS BULK STORAGE
NEW ENGLAND
MID ATLANTIC
MIDDLE WEST
SOUTH ATLANTIC
PERCENT FILLED ON FIRST OF MONTH
0 10 20 30 40 50 60 70 80
J A O D F A M J J A S O N D J F M A M
1947
1948
1949


DISTILLATE FUELOILS
STOCKS AT REFINERIES, TERMINALS AND IN TRANSPORT
EAST
MIDWEST
GULF
MILLIONS OF 42 GALLON BARRELS
0 5 10 15 20 25 30 35
THIS SEASON
LAST SEASON
JUNE JULY AUG SEPT OCT NOV DEC JAN FEB MAR APR MAY JUNE

Oilheating Back to "Normal"

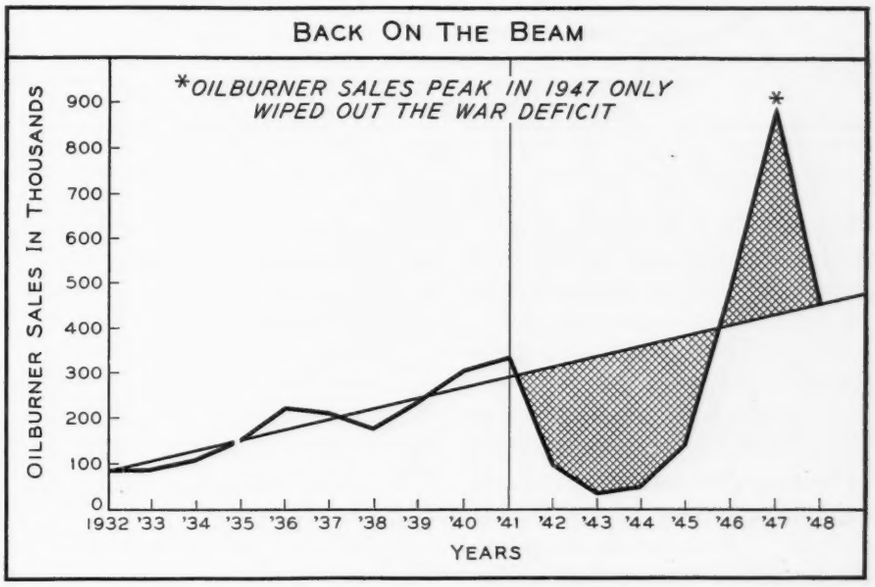
Sales in 1948 Return to Projected Prewar Rate of Increase

DOMESTIC CENTRAL oilheating installations in 1948 are estimated at 460,046, only 51.8% of the all time peak of 888,083 in 1947, though it was the third best year the industry ever has experienced. Central heating domestic installations in use increased 9% during the year to 3,978,860, in spite of record high replacements (90,750) and losses to other fuels (40,950).

Most significant fact about 1948 was that it marked the return to "normal" in the oilheating business for the first time in seven years. Installation losses suffered during the war years were made up in 1946 and 1947. The readjustment to normal was accompanied by anxiety as the industry fell from the peaks of the two preceding years, and publicity accompanying the oil scarcity was blamed for relatively slow business. Now, when all the facts are in, it becomes obvious that 1948 sales were almost exactly where they might be expected to be. A projection of the prewar line indicating the industry's rate of increase (See chart) gives us a normal expectancy of about 460,000 installations for 1948, and about 500,000 in 1949.

The year also is significant as being the first in which installations in new homes (and a few old homes not before centrally heated) were greater than conversions from other fuels. The 195,520 burners and units used in new homes were 42.5% of all installations, contrasted with 152,749, or 32.2% which were used to replace handfired fuels.

Oilheating remains the most popular form of automatic heating. Oilburner sales last year represented 55.1% of all automatic heating sales. Gas with 292,000 installations accounted for 35%, and domestic and small commercial stokers with a total of 82,245 installations in 1948 represented 9.9% of the total. This compares with 1947 when oil installations were 69.3% of all automatic heating installations, gas took 25.1% and stokers 5.6% of the year's sales.



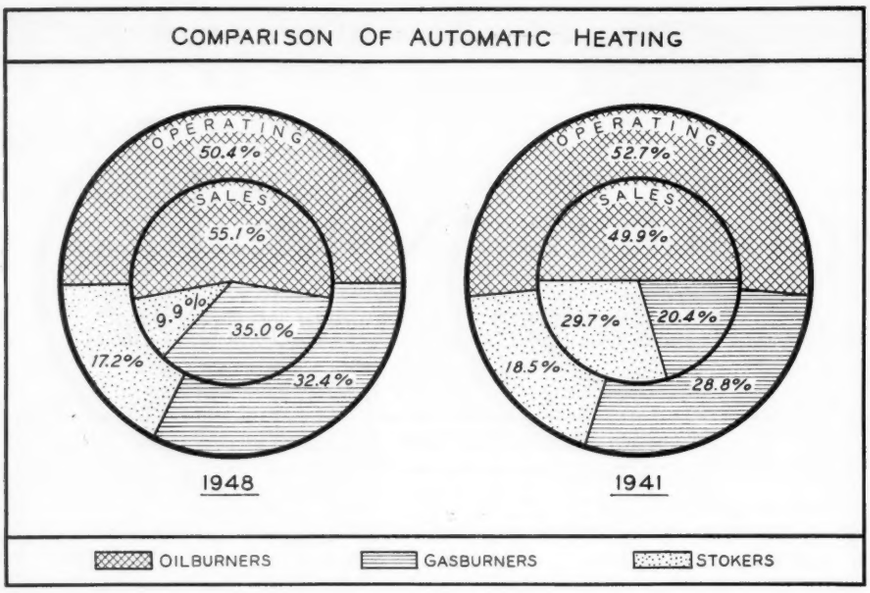
Automatic heating installations operating at the end of the year had increased 9.2% to 7,892,094, of which oilheating accounted for 50.41%, gas for 32.42% and stokers 17.27%. Though gas sales in 1948 were below the 1947 level, that industry increased its percentage of automatic heating installations by the end of the year, while oil and stokers declined slightly in per cent of the market. The table shows the percentage of the total market each of the fuels held at the end of the last three years.

Operating 12/31/48		*1948 %*	*1947 %*	*1946 %*
3,978,860	Oilburners	50.41	50.50	46.52
2,559,000	Gasburners	32.42	31.77	33.41
1,354,234	Stokers	17.27	17.73	20.07

Table 1 shows the annual sales of domestic oilburners and units since 1930, the retail and wholesale value and the total number operating at the end of each year. Though total oilheating installations during the year were off 48.2% from the 1947 high, factory value was off only 46% and retail value was down 42.8% from the year before. Though 1948 was the third best year from the point of view of installations made, it was the industry's second best year in dollar volume.

It is significant that of the 460,046 domestic oilheating installations made last year not all were shipped from factories in 1948. The total includes 40,066 burners and units used out of dealers' stocks during the year. Factory shipments, including export and burners shipped to unit manufacturers, probably will approximate the year's installations.

High pressure and low pressure burner installations gained last year at the expense of vertical rotary and vaporizing types. This may be a reflection of the publicity given to kerosene and light oil scarcity. Space heaters and water heaters using light grades of fuel also were off sharply.



The 343,655 high pressure burners installed in 1948 represented 74.7% of the total against 69.1% the year before. Low pressure burners and units amounted to 51,525 or 11.2%; vertical rotary equipment, 31,283 or 6.8%; and vaporizing central heating burners 33,583 or 7.3%. Figures for 1948 contrasted with 1947 and the prewar average are shown in the table.

1948 No.	1948 %		1947 %	Prewar Avg. %
343,655	74.7	High Press.	69.1	71.7
51,525	11.2	Low Press.	7.3	6.2
31,283	6.8	Vert. Rot.	7.3	11.0
33,583	7.3	Vaporizing	16.3	10.8

Retail prices last year were generally higher, though the softening in dealer price of high pressure burners during the year made the average conversion burner price 6.4% lower than in 1947. Retail prices are for a conversion installation with a single basement tank.

RETAIL 1948	RETAIL 1947		WHOLESALE 1948	WHOLESALE 1947
$390	$380	High Press.	$106	$117
481	397	Low Press.	155	150
444	392	Vert. Rotary	148	146
..	351	Vaporizing	..	108

High pressure burners at retail sold for 2.7% more than in 1947, though the cost of the burner to the dealer was off nearly 9%. Low pressure burners installed for 21% more than in 1947, while the cost to the dealer increased little more than 3%. Vertical rotary conversions brought 13% more while the price to the dealer increased slightly more than 1%. Too few vaporizing burners were used for conversion work to make possible the calculation of an average price.

How Burners Were Used

Of the 460,046 domestic burners and units installed last year, 195,520, or 42.5% were in new homes or existing homes not previously centrally heated. This compares with 283,298, or 31.9% in 1947. There were 152,749 burners and units used to replace handfired fuels, accounting for 33.2% of the total, against 502,656, or 56.6% in the year before. Replacements of old oilburners took 90,750, or 19.7% of the 1948 total, compared with 58,613 or 6.6% in 1947. There were 16,856 stokers re-

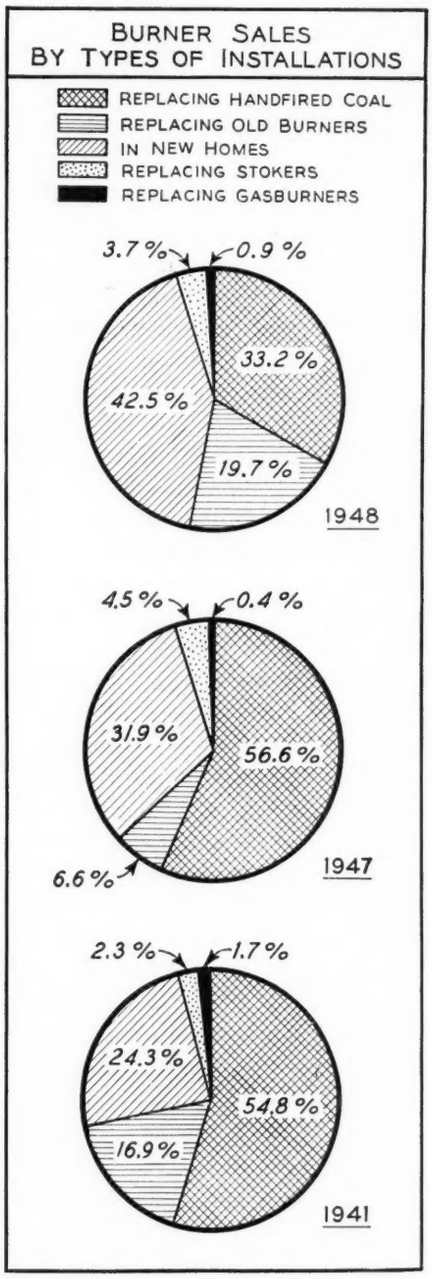
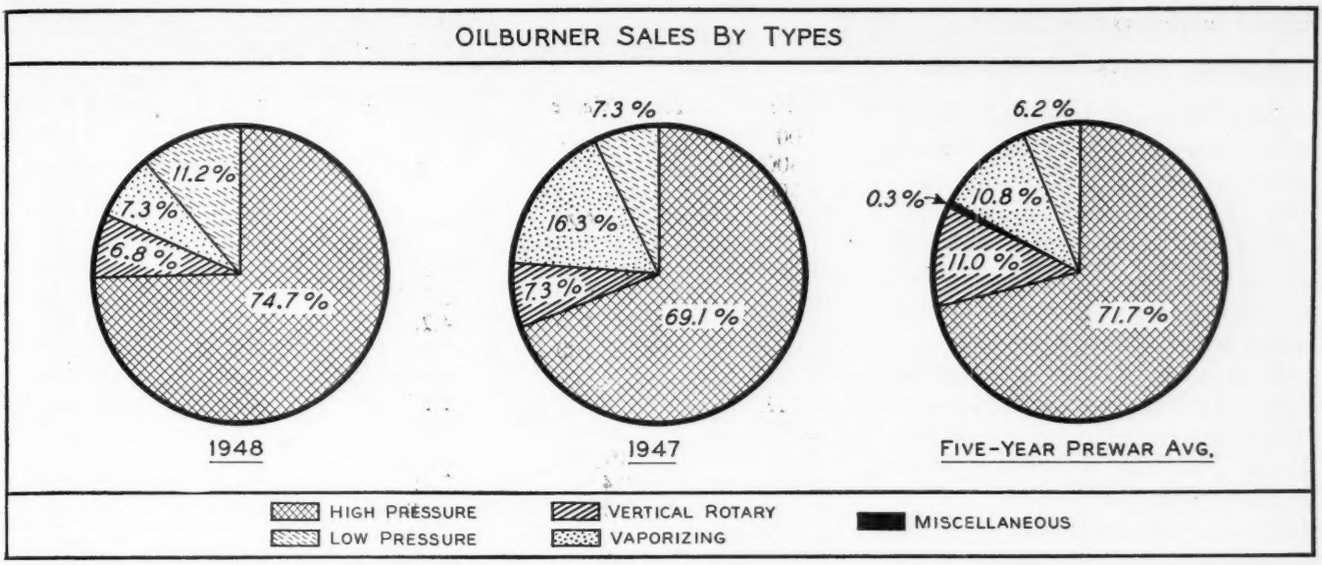


TABLE 1
TOTAL DOMESTIC BURNERS AND UNITS

Sales	Retail Value	Factory Value	Year	No. in Use (End of Year)
126,400	.....	.....	1930	648,500
104,000	.....	.....	1931	747,300
89,200	.....	.....	1932	831,120
88,600	.....	.....	1933	914,280
108,290	.....	.....	1934	1,012,870
150,510	$55,342,500	.....	1935	1,152,125
220,075	74,054,700	.....	1936	1,340,675
210,740	69,265,100	$22,238,200	1937	1,530,545
179,360	54,583,900	18,292,900	1938	1,667,745
236,140	66,520,400	23,352,200	1939	1,862,330
302,210	89,548,800	32,273,600	1940	2,135,125
333,250	113,546,400	41,931,800	1941	2,402,060
99,514	29,871,600	14,067,900	1942	2,386,290
33,445	5,283,300	5,431,000	1943	2,375,455
49,915	17,988,300	7,652,000	1944	2,392,265
145,596	49,245,200	17,845,400	1945	2,517,055
492,593	211,448,000	79,007,100	1946	2,821,044
888,083	418,178,500	156,759,900	1947*	3,650,514
460,046	239,411,600	84,675,800	1948	3,978,860

*Revised



placed by oil or 3.7% of the year's installations, against 39,964 or 4.5% of the 1947 installations. Replacements of gas took 4,171 or 0.9% last year, compared to 3,552, or 0.4% the year before.

While we were replacing 173,776 installations burning other fuels last year, there were 40,950 oilburner users who switched to other forms of heat. There were 29,743 former oil users who went to gas; 1,105 who switched to electricity; 4,938 who bought new stokers, and 5,164 who went back to handfired coal.

As has been pointed out here previously, replacements of old oilburners follow more closely the level of national prosperity than the average age of burners operating. There have been other factors, such as the urge on the part of dealers in recent years to create new oil customers with the equipment available rather than use it to replace the burners of customers already on the books. The average age of burners operating, for whatever weight it may have had, plus the inability to add new fuel-oil customers during much of 1948, increased replacement sales to a new high in number of burners and units. The accompanying table shows the number of old burners replaced in each of the last nine years and the percentage of the year's installations those replacements represented. It should be kept in mind that replacement sales were almost the only installations allowed during the war years.

Replacements		*%*
90,750	1948	11.9
58,613	1947	6.6
36,540	1946	8.0
29,847	1945	20.5
38,280	1944	76.7
13,910	1943	41.6
33,170	1942	33.3
56,315	1941	16.9
40,936	1940	15.2

Oilfired boiler and furnace units increased in popularity last year, continuing the long-time trend toward a larger percentage of units and fewer conversion burners in the total. Conversion burners used in 1948 are estimated at 316,971 or 68.9%, contrasted with 669,615, or 75.4% of the 1947 total. Integral boiler-burner units numbered 42,785 or 9.3% of last year's total volume, against 63,054 or 7.1% of the total the year before. There were 100,290 complete furnace-burner units used in 1948, representing 21.8% of all the burners and units, agianst 155,414 or 17.5% in 1947. The table shows the percentage of conversion burners and units in the total for the last three years and the prewar average.

Prewar *%*		*1948* *%*	*1947* *%*	*1946* *%*
80.5	Conversion Burners	68.9	75.4	83.0
9.1	Boiler-Burn. Units	9.3	7.1	9.2
10.4	Furnace-Burn. Units	21.8	17.5	7.8

Figures on oilfired units include only those units that are built and shipped from the factory as a unit. In addition to the 42,785 complete boiler units installed last year, dealers used conversion burners in new oil-designed boilers to assemble 47,712 new units in the field.

Dealer assembled furnace units and replacements required 188,388 oil-designed furnaces in addition to those

TABLE 2
DOMESTIC CONVERSION OILBURNERS

Sales	*Retail Value*	*Factory Value*	*Year*	*No. in Use (End of Year)*
126,400	$79,400,000	$24,648,000	1930	648,500
104,000	50,310,000	16,640,000	1931	747,300
86,200	36,911,000	12,068,000	1932	827,320
80,800	31,263,000	10,423,000	1933	902,680
98,990	33,116,000	11,681,000	1934	991,980
136,825	43,373,500	13,408,900	1935	1,115,125
197,430	59,229,000	18,558,400	1936	1,281,305
184,920	54,181,600	15,903,100	1937	1,446,295
153,850	40,462,600	12,154,200	1938	1,559,675
200,020	48,004,800	15,601,600	1939	1,719,940
238,845	55,645,900	18,152,200	1940	1,933,605
237,965	59,490,200	19,275,200	1941	2,113,160
71,658	16,552,700	6,090,900	1942	2,073,260
21,363	1,885,800	1,837,200	1943	2,060,465
37,885	10,607,800	4,184,600	1944	2,072,445
119,680	34,292,200	11,249,900	1945	2,173,910
408,861	151,258,100	48,625,800	1946	2,397,554
669,615	262,489,000	83,701,900	1947*	3,020,741
316,971	133,761,800	37,085,600	1948	3,213,166

*Revised

shipped complete as furnace units.

Domestic Conversion Burners

Table 2 shows the annual sales, retail value, factory value and the number of conversion burners operating each year since 1930. The 316,971 conversion burners used last year were exceeded only by 1946 and 1947. The retail and wholesale values also were the third largest in the industry's history.

Average retail price of a conversion burner in the last year increased 7.6%, though the minimum price burners showed a decrease of 1.1%, to $349, compared with $422 average for all conversions. Wholesale prices to the dealers declined on the average 6.4% to $117 during the year, and minimum price burners dropped 24.3% to $81. Conversion price detail since 1929 is shown in Table 5.

The price of replacement burners increased from $291 in 1947 to $298 last year, or 2.4%. This is $124 less than the average price for a conversion burner installation, compared with a $101 difference in the year before. Replacements in 1948 sold for 70.6% of the average retail price, against 74.2% the year before.

Complete Boiler-Burner Units

Annual sales of boiler-burner units, their retail and wholesale values and the number operating at the end of each year since 1932 are shown in Table 3. Retail value was the highest of any year except 1947, though the factory value was below both 1946 and 1947.

Number of boiler units operating increased 14.7% during last year to 318,417. The boiler units included in this table are only those shipped complete from the factory. No dealer assembled units using conversion burners and new boilers are included.

Boiler unit average installed price increased 12.7% in 1948 to $941 (Table 6), and the price of minimum price units increased 2.7% to $710. Wholesale prices, both for the minimum price equipment and the average for all boiler units, increased during the year. Though the average was up 6.3% to $388, the low price units increased 11.3% to $345.

Integral boiler units were 47.3% of the oilfired units installed, and dealer assembled units accounted for 52.7%. This compares with 49.2% integral units in 1947 and 50.8% field assembled boiler units. The table shows a breakdown of dealer assembled boiler units in recent years by type of boiler.

TABLE 3
INTEGRAL BOILER-BURNER UNITS

Sales	Retail Value	Factory Value	Year	No. in Use (End of Year)
3,000	.....	.....	1932	3,800
7,800	.....	.....	1933	11,600
9,300	.....	.....	1934	20,890
10,510	$9,511,600	.....	1935	31,400
15,025	9,781,300	.....	1936	46,250
14,430	8,557,000	$3,795,100	1937	60,240
14,220	7,877,900	3,711,400	1938	73,930
19,220	9,744,500	4,286,100	1939	92,540
26,955	13,322,700	5,005,300	1940	118,560
39,990	21,874,500	9,717,600	1941	155,720
9,313	5,289,800	2,877,700	1942	163,040
6,637	1,705,600	2,090,600	1943	164,240
6,440	3,909,100	2,002,800	1944	167,040
9,027	5,984,900	2,491,500	1945	175,165
45,130	34,765,900	18,088,100	1946	219,131
63,054	52,650,000	23,014,700	1947*	277,771
42,785	40,260,700	16,600,600	1948	318,417

*Revised

Table 6. Prices of Factory-Assembled Boiler-Burner Units

RETAIL				
Average	% change prev. yr.		Aver. Min.	% change prev. yr.
$905	..	1935	$723	..
651	—28.0	1936	566	—21.7
593	— 8.9	1937	516	— 8.8
554	— 6.5	1938	482	— 6.6
507	— 8.3	1939	441	— 8.5
495	— 2.4	1940	365	—17.2
547	+11.5	1941	378	+ 3.6
568	+ 3.8	1942	473	+25.1
533	— 6.2	1943	361	—23.7
607	+13.9	1944	450	+24.6
663	+ 9.2	1945	539	+19.8
770	+16.1	1946	589	+ 9.3
835	+ 8.4	1947	691	+17.3
941	+12.7	1948	710	+ 2.7
FACTORY				
$263	..	1937	$246	..
261	— 0.7	1938	244	— 0.8
223	—14.5	1939	208	—14.7
215	— 3.6	1940	183	—12.0
243	+13.0	1941	201	+ 9.9
309	+27.1	1942	229	+13.4
315	+ 2.0	1943	231	+ 1.0
311	— 1.3	1944	216	— 6.5
276	—11.2	1945	233	+ 7.9
351	+27.2	1946	267	+14.6
365	+ 4.0	1947	310	+16.1
388	+ 6.3	1948	345	+11.3

Table 5. Conversion Burner Price Trends

RETAIL					FACTORY			
Average	% change prev. yr.	Aver. Min.	% change prev. yr.		Average	% change prev. yr.	Aver. Min.	% change prev. yr.
$692	..	$554	..	1929	$240	..	..	..
629	— 9.1	516	— 6.8	1930	195	—18.7	..	..
495	—21.3	413	—19.9	1931	160	—18.0	..	..
438	—11.5	371	—10.1	1932	140	—12.5	..	..
395	— 9.8	341	— 8.1	1933	129	— 7.8	$109	..
341	—13.6	310	— 9.0	1934	118	— 8.5	99	— 9.1
317	— 7.0	275	—11.2	1935	98	—16.9	88	—11.1
300	— 5.3	266	— 3.2	1936	94	— 4.1	85	— 3.4
293	— 2.3	255	— 2.6	1937	86	— 8.5	82	— 3.5
263	—10.2	236	— 7.4	1938	79	— 8.1	76	— 7.3
240	— 8.7	218	— 7.6	1939	78	— 1.3	69	— 9.2
233	— 2.9	210	— 3.7	1940	76	— 2.6	63	— 8.7
250	+ 7.2	226	+ 7.6	1941	81	+ 6.9	65	+ 3.2
267	+ 6.8	245	+ 8.4	1942	85	+ 4.9	73	+12.3
276	+ 3.3	247	+ 0.9	1943	86	+ 1.2	76	+ 4.1
280	+ 1.4	258	+ 4.7	1944	98	+13.9	78	+ 2.6
313	+11.8	292	+13.2	1945	94	— 4.1	84	+ 7.7
370	+18.2	294	+ 0.7	1946	119	+26.6	90	+ 7.1
392	+ 6.0	353	+20.1	1947	125	+ 5.0	107	+18.9
422	+ 7.6	349	— 1.1	1948	117	— 6.4	81	—24.3

Cast Iron		Steel	Total
7,039	1942	1,651	8,690
2,240	1943	595	2,835
13,377	1944	1,491	14,868
18,734	1945	3,306	22,040
29,658	1946	5,537	35,195
55,695	1947	10,023	65,718
31,299	1948	16,413	47,712

Of the complete oilfired boiler units, 30,482 or 71.2% were cast iron, and 65.6% of dealer assembled boiler units were cast iron.

Total installation of all heating boilers last year amounted to 218,893, of which

Table 7. Heating Boiler Sales

	Total Output	No. for oil	% for oil
	CAST IRON		
1935	160,105	29,310	18.3
1936	186,560	41,922	22.5
1937	169,707	58,462	34.2
1938	135,282	54,139	40.0
1939	146,919	61,070	41.6
1940	168,839	77,764	46.1
1941	178,076	80,176	45.0
1942	111,875	10,765	9.6
1943	81,500	8,852	10.9
1944	75,760	19,140	25.3
1945	66,740	20,088	30.1
1946	161,667	46,548	28.8
1947	205,330	73,279	35.7
1948	189,175	61,781	32.6
	STEEL		
1935	14,415	14,181	98.1
1936	19,242	18,622	96.8
1937	16,569	15,321	92.7
1938	19,098	17,218	90.3
1939	23,658	21,857	92.4
1940	24,580	23,206	94.5
1941	25,666	24,173	94.2
1942	13,000	7,238	55.7
1943	3,550	1,230	34.7
1944	3,310	2,168	65.5
1945	16,008	10,979	68.6
1946	34,820	33,777	97.0
1947	51,333	45,755	89.1
1948	29,718	28,716	89.9

13.6% were steel and 86.4% cast iron. The boiler total is 15% below the level of 1947, but steel boiler output during the year was off nearly 42% from 1947. For comparison Table 7 shows the total cast iron and steel boiler output for each year since 1935, and the number and percentage of the output that was used for oilfiring.

This year dealers were asked to report the size of boilers they installed in brackets of 100 sq. ft. EDR. Reports indicate that 23.8% of all the boilers installed were rated at 300 sq. ft. of steam or below; 41% were between 300 and 400 sq. ft.; 18.8% were from 400 to 500 sq. ft.; 8.3% between 500 and 600 sq. ft.; and 8.1% were larger than 600 sq. ft. of steam.

Complete Furnace-Burner Units

There were an estimated 100,290 complete oilfired furnace-burner units installed last year, down 35.5% from the 1947 record level. Furnace unit installations maintained the steady rate of increase in percentage of the annual oilheating volume in 1948, when they accounted for 21.8% of the year's business. This compares with 17.5% in 1947, and 7.8% in 1946.

Retail value of furnace units was off more than 36% during the year, but still represented the highest volume, except for 1947, the industry has experienced. Wholesale value also was off sharply, but remained the second best in industry history. Furnace units in operation at the end of the year had increased 27% while the increase for all oilfired equipment stood at only 9%. Annual sales, retail and wholesale values and number of units operating at the end of each year since 1935 are shown in Table 4.

TABLE 4
INTEGRAL FURNACE-BURNER UNITS

Sales	Retail Value	Factory Value	Year	No. in Use (End of Year)
3,175	$2,457,400	.....	1935	5,600
7,620	5,044,400	.....	1936	13,120
11,390	6,526,500	$2,540,000	1937	24,010
11,290	6,243,400	2,427,300	1938	34,140
16,900	8,771,100	3,464,500	1939	49,850
36,410	19,115,300	7,646,100	1940	82,960
55,295	32,181,700	12,939,000	1941	133,180
18,543	8,029,100	5,099,300	1942	149,990
5,445	1,691,900	1,503,200	1943	150,750
5,590	3,471,400	1,464,600	1944	152,780
16,889	8,968,100	4,104,000	1945	167,980
38,602	25,429,000	12,293,200	1946	204,359
155,414	103,039,500	50,043,300	1947*	352,002
100,290	65,389,100	30,989,600	1948	447,277

*Revised

Average retail price of complete forced-air oil furnaces was off 1.7% in 1948 to $652, but minimum price units increased 21.3% to average $623. This spread of $29 is the smallest since records have been kept. The same trend in prices also applied to wholesale. Dealers paid an average of $309 for a unit last year, down 4% from the year before. Minimum price units increased in cost 2.3% to $304. Price trends in forced-air integral oilfired units since 1935 are shown in Table 8.

Table 8. Price Trends of Factory-Assembled Forced-Air Units

Average	% change prev. yr.		Aver. Min.	% change prev. yr.
	RETAIL			
$774	..	1935	$642	..
662	—14.4	1936	576	—10.2
573	—13.4	1937	499	—13.3
553	— 3.5	1938	481	— 3.4
519	— 6.2	1939	402	—16.4
525	+ 1.2	1940	360	—10.4
582	+10.9	1941	402	+11.7
611	+ 4.9	1942	413	+ 2.7
613	+ 0.3	1943	418	+ 1.2
621	+ 1.3	1944	434	+ 3.8
531	—14.5	1945	479	+10.4
659	+24.1	1946	526	+ 9.8
663	+ 0.6	1947	610	+15.9
652	— 1.7	1948	623	+21.3
	FACTORY			
$223	..	1937	$210	..
215	— 3.6	1938	204	— 2.8
205	— 4.7	1939	198	— 2.9
210	+ 2.4	1940	196	— 2.0
234	+11.4	1941	201	+ 2.5
275	+17.5	1942	236	+17.4
276	+ 0.4	1943	241	+ 2.1
262	— 5.1	1944	217	— 9.9
243	— 7.3	1945	239	+10.1
318	+30.9	1946	265	+10.9
322	+ 1.3	1947	297	+12.1
309	— 4.0	1948	304	+ 2.3

Total warm air furnace shipments in 1948 were off little more than 10% to 894,663. The 288,678 oil furnaces were 32.3% of the total against more than 46% for oil in 1947. There were 100,290 complete oilfired units shipped, or 34.8% of the total oilfired furnaces last year. The balance were dealer-assembled units and furnaces for replacement.

Coalfired furnaces shipped increased 18% during the year to 410,847, while the oil designed furnaces declined 37.8%. Gasfired furnaces showed an increase of 3.8%. A breakdown by type of construction and manner of handing air for each of the three fuels is shown in Table 9 for 1947 and 1948.

Dealers were asked to classify the oilfired warm air equipment they installed last year by size and capacity of the units installed. Of the oilfired total, 1.8% were 50,000 Btu or less at the bonnet. In the range between 50,000 and 75,000 Btu fell 29.3% of the warm air equipment; 75,000 to 100,000 Btu

Table 9. Warm Air Furnace Shipments

1948 Cast Iron	1948 Steel		1947 Cast Iron	1947 Steel
		FORCED AIR		
6,036	75,212	Coal	2,255	29,508
1,195	268,992	Oil	2,049	424,142
37,090	109,363	Gas	37,904	104,574
44,321	453,567	Total	42,208	558,224
		GRAVITY		
139,861	189,738	Coal	137,872	178,420
..	18,491	Oil	..	37,624
2,462	46,223	Gas	3,338	42,204
142,323	254,452	Total	141,210	258,248

Table 10. Commercial Oilheating

Sales		No. Operating (End of year)
14,990	1935	176,240
18,435	1936	192,830
19,380	1937	210,275
13,955	1938	222,880
16,445	1939	237,680
20,710	1940	256,320
34,750	1941	287,595
55,360	1942	293,120
44,470	1943	285,045
30,705	1944	286,680
30,515	1945	288,812
40,498	1946	325,310
53,596	1947	370,566
26,520	1948	389,130

units took 37.2%; 100,000 to 125,000 Btu, 23.5%; and larger than 125,000 demanded 8.2% of the oilfired furnaces. There is no breakdown by forced air or gravity units.

Commercial Oilburner Installations

There were 26,520 commercial oilheating installations made during 1948, little less than half the installations the year before. It represented the lowest level of activity in heavy oil equipment since 1940.

Commercial burners operating at the end of the year had increased 5% to 389,130. Annual sales of heavy oil equipment for heating, and the number of burners operating at the end of each year since 1935 are shown in Table 10.

Competitive Equipment

Domestic and small commercial stokers (Classes 1 and 2) showed an increase of 15.5% in sales during 1948 to 82,245. Of the total 76,710 or 93.8% were Class 1 units using up to 60 pounds of coal per hour. Class 2, with capacities from 61 to 100 pounds per hour, accounted for only 6.2% of sales.

There were 71,635 or 87.1% of the stokers designed for bituminous coal, and 10,610 for Anthracite.

Domestic and small commercial stokers in use at the end of the year had increased 5.4% to 1,354,234. Annual sales of small stokers and the number operating at the end of each year since 1931 are shown in Table 11.

Installations of central heating gasfired equipment last year, as estimated by the Gas Appliance Manufacturers Association, were off 9.3% from the year before to 292,000. Burners operating at the end of the year increased 11.4% to 2,559,000, compared with an increase of 14% in the year before.

Gas conversion burners last year accounted for 22.3% of the total, against 27.9% in 1947. Boiler units in 1948 were 10.9%, compared to 13.7% the year before, and furnace units were 66.8% last year against 58.4% in 1947. Details for recent years are shown in Table 12.

Other Equipment Sales

Besides central heating equipment sold by oilheating dealers in 1948, these dealers also sold 193,040 oilfired space heaters, or about 14% of the expected 1,400,000 oil heaters. They also sold 27,142 oilfired water heaters, of which 5,520 were fired with power driven oil-

Table 11. Domestic Stokers

Sales	% change		No. in use	% change
11,361	..	1931	20,811	..
11,144	— 1.9	1932	31,955	+53.5
15,618	+ 32.0	1933	47,573	+48.8
25,510	+ 73.3	1934	73,083	+53.6
45,194	+ 77.1	1935	118,277	+61.8
84,421	+ 86.8	1936	202,698	+71.3
103,378	+ 22.4	1937	306,076	+51.0
98,907	— 4.3	1938	403,005	+31.6
106,208	+ 7.4	1939	507,412	+25.9
159,533	+ 48.6	1940	658,970	+29.7
198,243	+ 24.3	1941	843,313	+28.0
96,420	— 51.3	1942	938,315	+11.3
19,040	— 80.2	1943	955,450	+ 1.8
32,245	+ 69.3	1944	984,740	+30.5
119,520	+270.7	1945	1,082,700	+ 9.9
240,652	+101.3	1946	1,217,140	+12.4
71,192	— 70.4	1947	1,281,213	+ 5.3
82,245	+ 15.5	1948	1,354,234	+ 5.4

burners and 21,622 were sold with vaporizing burners. This was nearly 60% of the estimated 47,000 oilfired water heaters sold last year.

Dealers in central heating oilfired equipment sold 12,051 stokers, or about 7% of the total domestic and small commercial units. Gasburner installations by oilburner dealers totalled 43,992, or little more than 15% of the gas total. They also sold 36,804 oilfired floor furnaces,

"Anybody else want to quit before this suit goes to the cleaner's?"

or about 30% of the estimated 120,000 for the year. Much of this equipment goes into new building where dealers have a hard time to compete.

Summary

In spite of a poor start, the industry finally turned in the third best year of its history in oilheating unit volume, and its second best year from the point of view of dollar volume. Oilburner installations in 1946 and 1947 exceeded those of 1948 by comfortable margins, but it now is obvious that those were the years in which the deficiency of the war years was made up. Last year was a normal one, and was almost exactly where volume would have been, had there been no interruption due to the war.

The return to normal business with the flush demand completely sold, and an adequate supply of oil in sight, marks the beginning of the real postwar period. The public has money. About half the population wants to heat with oil. All that remains is to sell oilheating before the homeowner buys other appliances and fixtures which he also would like.

This year can be an excellent one for oilheating sales, but it must be kept in mind that too few people will buy without help from the dealer and his sales staff.

Table 12. Domestic Gasburners

Annual Sales: Conversion	Boiler Units	Furnace Units	Total		No. in Use (End of Year)
21,687	10,201	56,666	88,554	1940	1,187,486
36,335	15,007	85,043	136,385	1941	1,310,222
6,087	10,966	29,412	46,465	1942	1,352,040
800	3,485	8,970	13,255	1943	1,363,970
3,180	5,217	12,113	20,510	1944	1,382,430
14,183	14,959	27,676	56,818	1945	1,433,570
400,000	32,500	230,000	662,500	1946	2,027,548
90,000	44,000	188,000	322,000	1947	2,297,000
65,000	32,000	195,000	292,000	1948	2,559,000

1948 Dealer Activities

With Materials Again Plentiful, Oil Put On The Brakes

FOR THE FIRST year since the oilburner business started, 1948 saw dealers dependent on the fuel side of the industry for permission to get out and make a living. Through all the industry's years, except in wartime, abundant oil supply has always been taken for granted. Then, for a period of eight or ten months it was no longer available in unlimited quantities and the whole oilheating industry was distinctly bewildered.

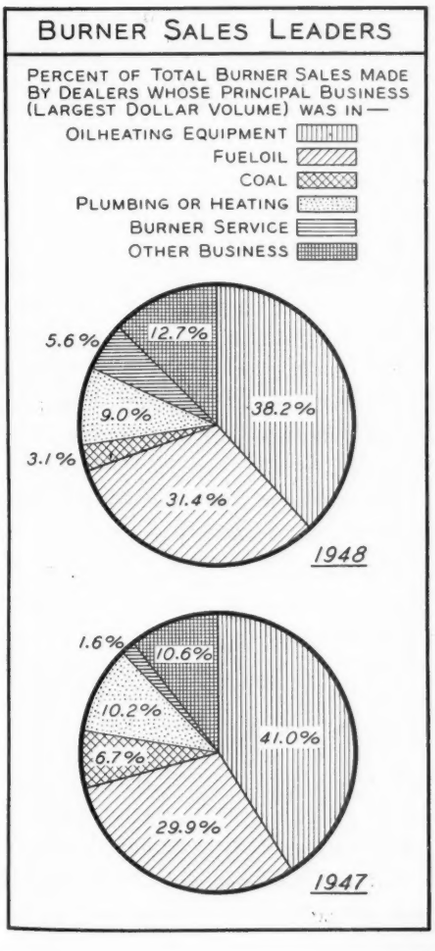
The Fall months of the year, however, brought back the constructive tone with the oil stringency definitely relegated to past tense and the public willing to be sold at least a moderate quantity of burner installations. The year was the third best up to now, being surpassed only by 1946 and 1947, and it was 38% above any prewar year in number of burner installations.

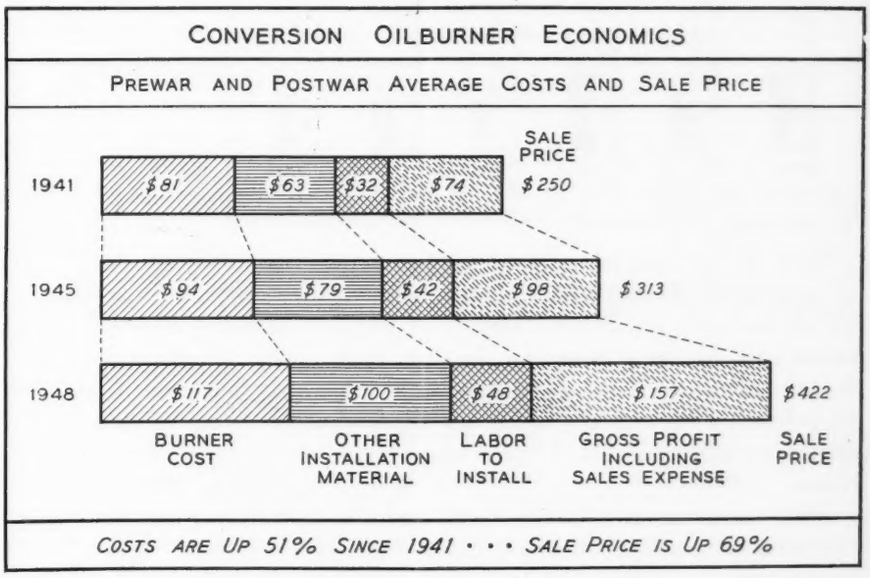
For most dealers it was a profitable year, although their earnings were considerably less than they would have been had they been able to trim their sails at the start to match the volume that they eventually got.

In dropping from 880,000 installations in 1947 to 460,000 in 1948, there were naturally quite a lot of changes in former industry patterns. The traditional oilburner dealer, the company whose principal dollar volume is in the sale of oilheating equipment, did relatively less of the total 1948 business than in previous years, dropping from 41% in 1947 to 38.2% in 1948. This might be explained by the fact that this type of dealer is primarily a merchandiser, and his working pressure was considerably deflated by the endless barrage of bad newspaper publicity. Again, he is the type that normally employs oilheating salesmen and he lost a great many of those because they couldn't support themselves.

The fueloil distributor on the other hand increased his percentage from 29.9% to 31.4% of total burner sales. He was in the best position to know what customers he could supply. One of the principal changes in type of outlet selling burners, as shown in the chart, was the unexpected rise in prominence of the oilburner serviceman. In 1947, firms whose largest dollar volume was in burner service had made 1.6% of burner sales while last year they accounted for 5.6%. Some of this shift was due to the fact that some of the firms whose largest dollar volume had been in burners in 1947, saw such a decline in these sales that they moved into another category in the past year.

Oilburner prices for the year were up quite a bit more than costs so that the individual transactions as a whole were more satisfactory. The chart shows that the average price that the dealer paid for his burner was lower than the previous year, and the same was true of the incidental installation materials, such as tanks, piping, combustion chambers, etc. Installation labor cost was up by only about 10%. The gross spread between primary costs and average sale price, or $157, was 37% of the sale price, the best in many years.





1948 Installed Cost of Conversion Burner

	New Eng.	Mid. Atl.	Mid-West	The South	1948 U. S. Total	1947 U. S. Total	1946 U. S. Total
Paid for Burner	$106	$112	$121	$ 93	$117	$125	$119
Installation Materials	111	105	78	109	100	106	100
Labor, including subcontract	36	56	43	48	48	44	51
Gross profit, including sales expense	122	193	150	131	157	117	100
Average sale price	375	466	392	381	422	392	370

Oilheating Prices For New Homes

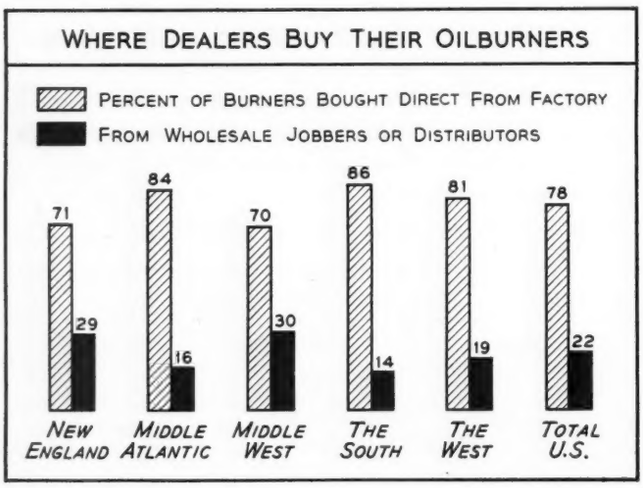
	FIRING EQUIPMENT ONLY		COMPLETE OILFIRED SYSTEM	
	Boiler Burner Unit	*Furnace Burner Unit*	*Oilfired Boiler & Radiation*	*Oilfired Furnace & Duct Work*
New England	$779	$561	$1265	$ 927
Mid-Atlantic	797	604	1426	1088
Midwest	688	511	1222	1016
The South	738	567	1625	1155
The West	800	484	1469	904
1948 U. S. Aver.	729	559	1369	1025
1947 U. S. Aver.	735	589	1158	948
1946 U. S. Aver.	735	578	1298	992

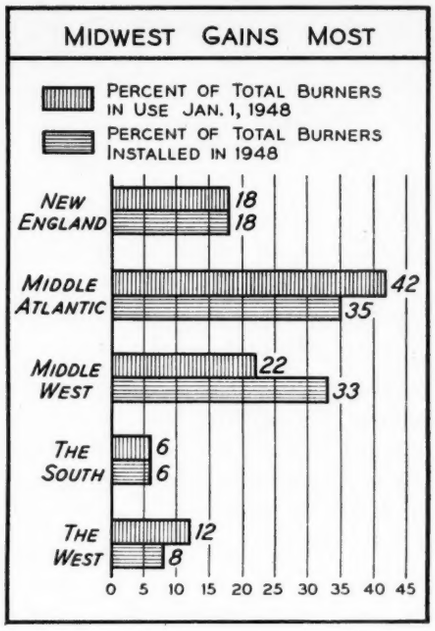
Dealer Advertising Expenditures

	Per Dealer	*Per Burner Installed*	*Per Service Customer*
Newspapers	$328	$7.23	$0.80
Direct Mail	54	1.19	.13
Telephone Directory	93	2.06	.23
Radio	28	.62	.07
1948 Total	503	11.10	1.23
1947 Total	485	4.77	.71
Typical dealer, number of customers		45	409

Oilburner Salesmen By Types

	1948 U. S. Total	*1947 U. S. Total*	*1946 U. S. Total*
Percent of men selling on commission	39	42	38
On salary	26	26	32
On salary and commission	35	32	30
Average commission rate	11.1	10.3	10.7
Average burner sales per man	59	68	67





Moderate Sales Vitality

	—OF ALL BURNER SALES—	
	Buyer Approached Dealer	*Salesmen Approached Buyer*
New England	46%	54%
Mid-Atlantic	51	49
Midwest	51	49
The South	34	66
The West	52	48
U. S.	49	51

Where Dealers Buy Their Burners

	—PERCENT OF DEALERS—		—PERCENT OF ALL BURNERS	
	From Factory	*From Wholesaler*	*From Factory*	*From Wholesaler*
New England	52%	48%	71%	29%
Mid-Atlantic	65	35	84	16
Midwest	51	49	70	30
South	84	16	86	14
West	59	41	81	19
U. S. Total	59	41	78	22

The table showing oilheating prices for new homes shows a price increase on all categories except the furnace burner unit. In asking dealers for their market experience on these new home job prices, it was specifically stated that these were to be typical G. I. five-room houses.

The dealers reporting for this study, say that on 51% of their oilheating sales in 1948, they took the initiative, or in other words, they first approached the prospect, while on the other 49%, the buyer came to them first. There was some geographic variation on this, as the table shows. Now that so much emphasis is being put on a revival of sales activity for 1949, these ratios should change to a degree that shows less "over the counter" business and more that is definitely promoted.

Dealers' expenditures for advertising in 1948 averaged a little higher than in 1947, $503 average compared to $485. This probably reflects a start in the Fall of more active selling plans. It is interesting to note in the table that the advertising outlay per burner installed was more than double that of 1947, largely because of the decline in number of sales.

Most oilburner salesmen continue to be paid on a commission basis in 1948, but the ratio dropped somewhat from 1947. The table, "Oilburner Salesmen by Types," shows the proportion of those working on commissions, on salaries, or a combination of the two. The salary and commission arrangement seems to be growing in popularity, while the table also shows that average commission rates last year were up over 1947.

The Midwest came into prominence as a burner market last year, as the chart shows that region gaining more than any other in relation to its previous standing. A part of the reason for this was that there was less danger of oil shortage in that area, and consequently less unfavorable publicity. On the other hand, natural gas continues to be stymied in most markets by lack of pipeline capacity so that an abnormally large share of Midwestern new homes got oilheating.

The table and chart indicating where dealers buy their oilburners, show that a little more than two-fifths of them get their burners from middle-men rather than from factories, but these dealers account for only 22% of total sales. There was a slight shift on this ratio from the previous year, where 42% of dealers bought from wholesalers but did only 19% of the total business. This change does not necessarily point to a trend since the year had so many unsettling factors.

The table showing the type of heating systems that got oilheating installations in 1948 discloses an unusually sharp drift toward warm-air as compared to 1947. This was principally because, in a sharp decline of oilburner sales, new home installations stood up fairly well, and reached the unprecedented peak of 42% of all installations. New home work has been largely warm-air for reasons of economy. At such time as new home business might go back to anything like its lower ratio of former years, boiler heating can be expected to show greater strength with the oilburner man.

Speaking of new homes, dealers believe that about 6% of this business, nationwide, is done by factories in direct sales to builders, without going through jobbers or dealers.

There was some conversation during the year about oil tanks being in short supply although on a late Fall check only 6% of dealers were having any difficulty. Actually, at the end of the year, there were more tanks in dealer stocks than a year previous, 105,657 as against 100,039. When tank manufacturers back in 1947 had proven their capacity to turn out as high as 80,000 a month, there is little probability of any further shortage of consequence when the demand in the year ahead promises to average not more than 50,000.

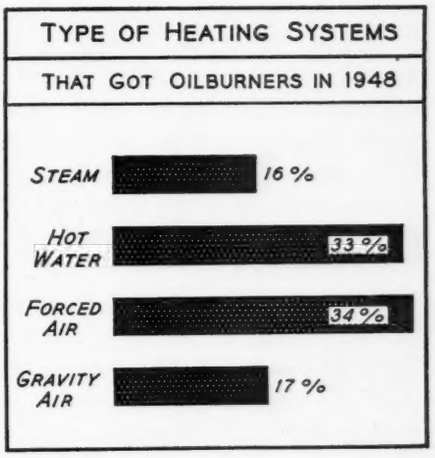
Looking ahead into the new year, all reporting dealers were asked to estimate what they could see in the way of sales in their markets. Putting together all of the opinions, the dealers expect total oilburner installations in 1949 to be about 546,000. It is interesting to note in the chart that the firms whose principal business is oilburners are more optimistic on the whole than those whose principal business is fueloil. The fueloil men don't have the urgent necessity to make equipment sales because they have a steady and usually profitable income from their fueloil gallonage.

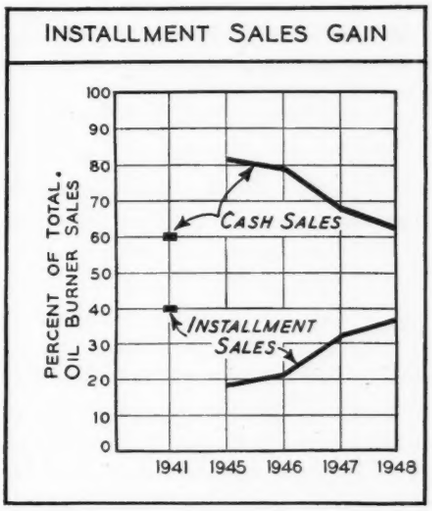
1949 Up 20 Percent?

It seems quite clear, with several factors breaking in favor of equipment sales, that the volume for the year should run somewhere around the average of these dealers' expectations or around 550,000. If both dealers and manufacturer of equipment gear themselves with suitable expense ratios for that level of activity, the year could be distinctly profitable to both groups.

Dealer Stocks of Burners and Tanks

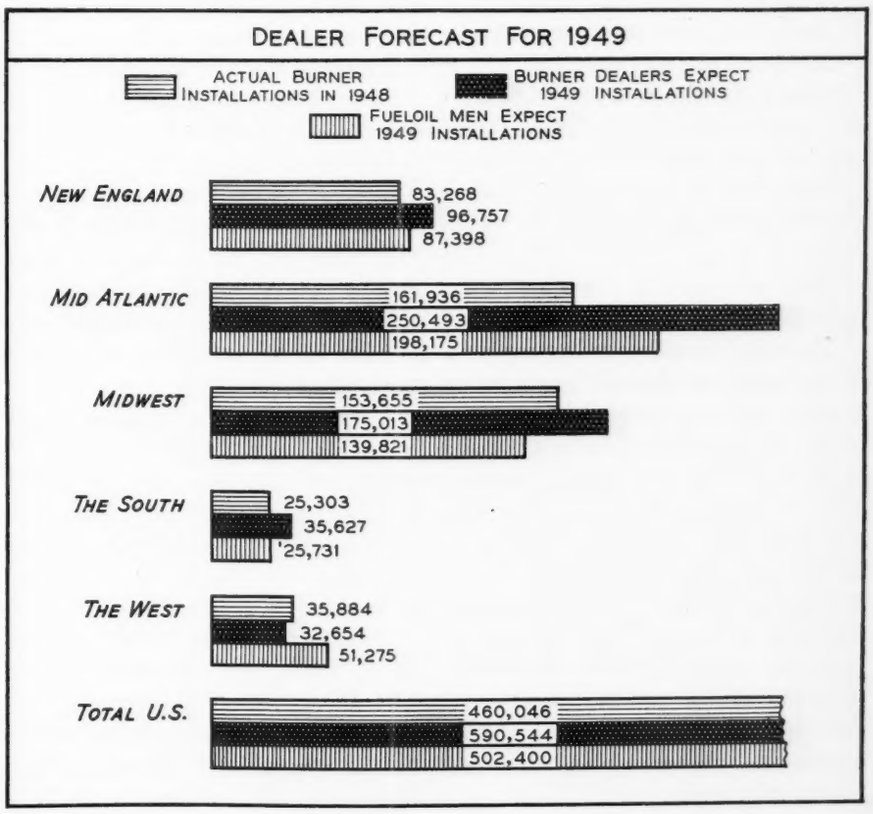
	Burners and Units	*Oil Tanks*
New England	14,889	32,431
Mid-Atlantic	37,072	38,449
Midwest	23,770	25,625
The South	6,210	3,910
The West	6,177	5,242
U. S.	81,118	105,657





Type of Heating Systems That Got Oilheating

	Steam	*Hot Water*	*Forced Air*	*Gravity Air*
New England	22	55	10	13
Mid-Atlantic	23	42	19	16
Midwest	6	10	62	22
South	11	26	56	7
West	3	12	60	25
1948 Avg.	16	33	34	17
1947 Avg.	26	30	21	23
1946 Avg.	29	30	18	23



Fueloil Yardsticks

Operating Efficiency Suffers Little In Year of Supply Confusion

PROBABLY NO OTHER YEAR IN THE history of the oilheating industry has been as difficult for fueloil distributors as 1948. During the first half of the year, hounded at every step by either actual supply shortage or threatened shortage, it was impossible for most marketers to do any intelligent future planning. Under such conditions many ordinary day-to-day problems were potential crises.

In getting together the figures on the year's operation, it is distinctly surprising to find that under these conditions there was no pronounced drop in operating efficiency. In several items of the distribution record, there was instead a distinct gain over previous years.

It now becomes apparent that while the fueloil marketer was being harassed by supply fears, he was at the same time being blessed in several directions. He had added more customers for the 1947-48 season than ever before in a single season, but he had not found it necessary to add correspondingly more trucks and drivers, so he was able to effect some economies in delivery costs, even in the face of rising drivers' wages.

Moreover, the men who worked for him, be they office clerks or truck drivers, were affected by all of the adverse publicity the industry was getting, to the point that they were definitely sympathetic and inclined to do their best to make the most of a bad situation. This attitude shows up in a number of the operating figures.

The large table, (Characteristics of 1948 Fueloil Distribution), pretty much tells the story from a strictly figure viewpoint. On a number of the items covered in the table, it is not possible to make an exact comparison with the previous year, for while each study was based on a large and representative number of fueloil marketers, they were not necessarily the same marketers. Thus while the figures are considered reasonably representative of the industry as a whole, they would naturally be more directly comparable if based on the same companies each year.

Dropping down the list to the fourth item, "Average Sales Per Dealer," this shows 2,034,000 gallons of No. 2 heating oil as against an average last year of 1,574,000 gallons. This reflects principally the huge gain in number of burners installed in 1947, but also shows that the average reporting dealer this year is a little larger. In other words the average gallons sold per dealer is up 29% in the 1947-48 season over the previous season, while the average number of customers per dealer is up 22%.

Savings Offset Weather

It is very interesting to notice that the average number of gallons burned per customer in the 1947-48 season, or 1,663, is almost identical with the average of 1,670 in the 1946-47 season, in spite of the fact that the recent season was nearly five percent colder, nationwide. This would seem to be the final measure of the amount of voluntary conservation by the public while frightened by the newspaper headlines of impending disaster when the oil supply ran out. This is not nearly as large an estimate of voluntary saving as the figure commonly used last winter. In late January, a FUELOIL & OIL HEAT survey in twenty representative cities showed a voluntary consumer saving based on Degree-Day "K" factors of 8.9%, while at about the same time a checkup by the Shell Company on its direct consumer accounts showed a saving of 9.7%. Thus the 9% figure came to be accepted as the measure of consumer help on the supply problem.

It now appears that when people found the supplies still coming, in spite of the prophets of impending doom, they relaxed and burned a normal amount in the second half of the season, winding up with a net saving of four or five percent.

Two items showing very noticeable improvement over the previous year were the number of distillate customers served by each truck, and the average gallons of distillate delivered per truck. The number of customers per truck rose from 244 in 1947 to 273 in 1948. This largely accounted for the increase in annual gallons delivered per truck from 498,000 to 575,000.

It is interesting to speculate on what has caused this figure to climb steadily in recent years. Apparently, the high rate of burner installations has brought a concentration of accounts while at the same time larger sized trucks and greater management skill have made their contributions. In any event, the average annual gallons per truck today is more than double what it was in 1940.

Another notable gain was made this year in the average number of gallons per drop, from 203 to 231 on distillate heating oil. A little of this gain was caused by the installation of larger storage facilities for old customers. An accompanying table shows where oilheating dealers and fueloil distributors installed in 1948 more than 120,000 additional tanks to enlarge the home storage capacity of old accounts. It was a very remarkable year for that particular activity and it would be very hard to duplicate now that the supply scare is over, unless the industry should swing into line behind the Westchester County, New York, group in offering price savings to customers with larger storage.

Customers Add Storage

About one oilburner user in each 30 throughout the country got additional storage during the year. The total capacity added to these old accounts was a little over 67 million gallons, or about 5.5%. This indicates that the old average storage capacity of 334 gallons per customer, nationwide, has been raised to 352 gallons. It will be interesting now to see whether the industry can retain that high an average on new installations.

Dealers also added to their own storage capacity in 1948 to the extent of a little over 14% on distillate fuels and a little under 5% on Kerosene and No. 1 oil. This marked a real gain on distillates, being considerably greater than the gain in the number of oilburners operating,

which was only 9% for the year. The table shows how these gains were distributed geographically. There is also a new table showing the latest estimate of total bulk storage capacity at dealers' plants. This table makes some considerable changes from the one last previously published two years ago, and while it naturally does not represent an exact count of every bulk station, it has been projected from the experience of a large number of dealers in all areas, and is probably accurate enough for practical purposes.

Notice that the capacity shown, or a little over 22 million barrels in the country as a whole, represents 11% of the expected demand during the present season, indicating an annual turnover rate of nine times. There is almost an endless variation in turnover rates, ranging all the way from once every four days at some eastern tidewater plants, to a turnover of only once a year in the frozen-in regions like the Mohawk Valley or the upper Mississippi and Lake Superior markets.

The table on automatic deliveries shows a slight increase in the number of dealers operating such systems and a slight decrease in the percent of customers thus served. A small change from 1947 to 1948 could be accounted for in the differing characteristics of the two groups reporting in the separate years. On the other hand, it is fairly well known that quite a number of the most effective dealers saw fit to drop outlying accounts off of the degree-day systems in the years immediately after the war, as experience demonstrated that route systems were more economical where the customers were scattered. This accounted for some of the drop also shown in the table from 1946 to 1947. Again, the fueloil supply trouble of the 1947 and 1948 years caused some of the less public spirited dealers to discontinue automatic deliveries for they well knew that the customers would be willing to order oil to be sure of getting it.

The table also shows an increase in the number of customer tanks equipped with VENTALARM signals. The use of this equipment is strongest in New England where 58% of customer tanks are thus equipped, and weakest in the southern states where a negligible number are in use.

Characteristics of 1948 Fueloil Distribution

	New Eng.	*Mid. Atl.*	*Mid-West*	*The South*	*The West*	*U. S. Total*
Percent of dealers with bulk plants:						
with distillate storage	74	68	94	73	56	74
with No. 1, Kero. storage	60	55	89	91	20	61
with residual storage	neg.	4	6	9	16	5
Avg. storage cap. (thous. gal.) Distillate	129	242	80	96	48	154
No. 1, Kerosene	74	50	71	70	27	57
Residual	neg.	123	49	neg.	48	73
Percent of dealers selling No. 1, Kero.	83	76	87	92	44	77
Percent selling Residual	32	18	10	16	48	22
Average sales per dealer (thous. gal.)						
No. 1, Kerosene	2,064	2,206	1,557	2,054	1,836	2,034
Residual	277	149	347	603	380	381
Distillate	1,711	1,431	1,058	200	1,050	1,405
Average number of customers per dealer						
Distillate, residential	678	938	698	461	1,208	844
Distillate, commercial-apartment	65	82	81	86	97	81
No. 1, Kerosene	345	186	354	1,029	479	459
Residual	37	55	75	25	56	56
Avg. gal. per customer, 1947-48 season						
Distillate, residential	1,873	1,745	1,602	1,547	1,232	1,663
Distillate, commercial-apartment	12,237	6,908	5,441	4,484	3,588	7,685
Distillate, all users	2,778	2,163	1,999	1,990	1,407	2,137
No. 1, Kerosene	803	801	989	586	794	830
Residual	46,260	26,010	14,109	8,000	18,747	25,085
Trucks operated per dealer, Distillate	3.3	3.5	3.0	2.0	3.3	3.2
No. 1, Kerosene	1.7	2.8	1.2	2.5	1.3	2.0
Residual	1.4	1.2	2.3	3.7	2.8	1.8
All types	4.6	4.4	4.9	5.5	5.2	4.3
Customers per truck, Distillate	216	297	233	274	366	273
No. 1, Kerosene	275	155	154	276	255	196
Residual	40	20	68	10	34	35
Annual average miles per truck	9,641	8,827	11,000	6,736	13,712	9,912
Annual gallons per truck (thousands)						
Distillate	600	642	466	545	515	575
No. 1, Kerosene	221	124	152	162	202	163
Residual	1,850	520	959	80	637	878
Average gallons per drop, Distillate	198	233	230	267	260	231
No. 1, Kerosene	52	97	111	93	78	89
Residual	3,248	1,990	1,148	2,000	1,249	1,943

Dealers' Bulk Storage Capacity, No. 2 Oil

	Barrels	*Percent of Season Demand*
New England	3,229,740	6.8
Mid-Atlantic	12,026,659	14.2
Middle West	5,450,733	12.8
The South	1,085,987	9.1
The West	616,891	3.9
Total U. S.	22,410,010	11.1

Dealers' 1948 Additions To Bulk Storage Capacity

	No. 2 Oil	*No. 1, Kero.*
New England	2.0%	2.7%
Mid-Atlantic	17.0	4.1
Midwest	17.1	6.2
The South	2.9	8.3
The West	12.8	6.0
Total U. S.	14.1%	4.8%

Extra Tanks for Old Customers in 1948

	NUMBER OF TANKS INSTALLED					
	275 gal.	*550 gal.*	*675 gal.*	*1000 gal.*	*1500 & up*	*Total*
New England	11,411	1,045	..	1,742	436	14,634
Mid-Atlantic	27,223	4,729	..	16,415	6,417	54,784
Midwest	32,779	4,348	621	4,762	2,898	45,408
The South	1,383	533	..	237	40	2,193
The West	2,745	180	385	26	..	3,336
U. S. Total	75,541	10,835	1,006	23,182	9,791	120,355

Automatic Deliveries Down; Fill Signals Up

	1946	*1947*	*1948*
Percent of dealers using automatic deliveries	56	65	66
Percent of customers thus served	74	64	63
Percent of dealers using VENTALARM signals	58	50	57
Percent of users' tanks equipped	26	33	38

Truck Drivers' Wage Rates Per Hour

	NON-UNION						UNION					
	—EXPERIENCED—			—BEGINNERS—			—EXPERIENCED—			—BEGINNERS—		
	High	*Low*	*Avg.*	*High*	*Low*	*Avg.*	*High*	*Low*	*Avg.*	*High*	*Low*	*Avg.*
New England	1.68	.75	1.18	1.50	.72	1.04	1.38	1.18	1.28	1.38	1.18	1.28
Middle Atlantic	1.98	.70	1.30	1.60	.70	1.10	1.87	1.25	1.52	1.87	1.05	1.39
Midwest	1.50	.68	1.21	1.00	.68	.94	1.82	1.00	1.33	1.75	.98	1.27
South	1.50	.90	1.12	1.20	.75	.99	..	..	..	..	..	..
West	1.87	1.25	1.59	1.50	1.10	1.31	1.72	1.40	1.53	1.72	1.37	1.43
1948 U. S. Aver.	1.78	.78	1.28	1.41	.75	1.07	1.75	1.20	1.43	1.73	1.10	1.35

For the first time this year, a table is included showing the wage rates of truck drivers. Only a relatively small percent of drivers nationwide belong to unions, but in some individual cities they are nearly all unionized, so it seemed desirable to separate the two groups.

It is important to keep in mind in studying the table that the higher average union rates over the non-union should not be looked upon as resulting solely from collective bargaining accomplishments. Union rates are higher on the average because the union organizations are found almost entirely in large cities where wages and living expenses generally are higher than in small cities and towns. The non-union classification naturally includes all of the small places, as well as the non-union city shops. As a rule in a large city the non-union rates are about as high, and sometimes higher than those of the union just to preserve the freedom that goes with individual negotiation. Notice, for example, that the highest non-union bracket of $1.78 is three cents higher than the corresponding union classification.

The large chart showing operating costs vs. margins emphasize the point that while margins this year have gone up compared with 1947, they have not increased as much as operating costs for those companies maintaining their own bulkplants. On the other hand, companies without bulkplants are slightly better off than they were a year ago. No attempt is made in this study to be at all exhaustive on the margin question since the approach is too simple for that. The figures represent simply weighted averages of the experience of a few hundred fueloil distributors well distributed throughout the country.

They should not be compared in the sense of a yardstick with the operations of any individual company, other than in a very general way. It is well known, for example, that many big city companies have higher operating costs than fueloil marketers of the same size in small places. The big city companies also have high margins, as a rule. The more one studies margin and cost positions throughout the industry, the more he is amazed at their diversity. The margins ran from as low as .84¢ to as high as 4.5¢, and net operating profits among individual companies reached a peak of 1.6¢ and from there ranged down to a loss of .25¢.

The chart does again demonstrate, as it did last year, that the larger companies generally have more difficulty making a real profit even though their margins are higher. Part of this factor is due to their being often located in large cities where expenses run high, but more of it is because a large company has to hire a lot of skilled managerial help where in the small company the proprietor does his own masterminding.

An example of how the larger companies have higher costs was seen recently in a survey released by John Birmingham, president of White Fuel, Boston, and covering revisions to cost studies made by the late Clyde Morrill for the New England Oil Men's Association.

Those studies and their recent revisions were made by a certified public accountant from the books of a dozen very large fueloil distributors in the Boston harbor market. They can be considered quite accurate for companies of that size. They show a total operating cost of 2.765¢ per gallon in 1948 for companies with bulkplants, which is substantially above any of the average figures shown in the chart. It is significant to notice, however, that this Boston study embraced a group of companies averaging around 10 million gallons each.

There has been considerable discussion about dealers maintaining posted prices in their markets. Among all of those reporting for this annual study 89% are selling at posted prices, 8% are selling at premiums above the majors, ranging anywhere from .2¢ up to 1½¢, while 3% are selling at discounts from posted prices ranging from .1¢ to .5¢. During the period of short supply, it was not difficult for almost any dealer to get a premium, but under the competitive conditions immediately ahead, not many will be able to sustain such a position. On the other hand, it has been repeatedly proven that dealers of outstanding reputation can get a quarter cent above posted prices in a competitive market, and considerably more than that if they include oilburner service. This has been proven in such areas as the Cape Cod section and in western New York.

Credits Become Important

Credits are becoming something of a problem now that oil prices are so high as to become a major item in the family budget. Countrywide, 9% of fueloil distributors offer some form of cash inducement for early payment. In a number of instances this cash is first added to the price, and then discounted if the check arrives pronto. As an exaggerated example to demonstrate this point one dealer adds a full cent to his billing price, and then allows it as a discount if the check is received within thirty days. Some others add a half cent which is then discounted for ten-day payment, but the most frequently used device seems to be a small premium added and then discounted if the bill is paid by the tenth of the following month. All of the companies who have adopted discount devices for prompt payment seem convinced that they have stimulated collections.

During the year the question arose as to what fueloil marketers do about long hauls to farm customers, and as a result the reporting group was asked what they do. Averaging the whole lot from all sections of the country, the fueloil distributors in serving farms will drive twelve miles from their bulkplants without any added cost. For greater differences they add anywhere from .1¢ up to 1.0¢ a gallon, averaging for all cases .6¢. This is a consideration that will require some study as the farm market becomes increasingly important to the oilheating industry. In general farm business has been considered desirable because of large average tank sizes and a degree of rural prosperity that permits getting a suitable price.

Looking into 1949, fueloil marketers will return to definitely competitive conditions for the first time since 1941. To hold a satisfactory volume or to increase it at satisfactory price levels is going to call for some real sales effort . . . a point scarcely recognized by more than a handful of fueloil men today. Yet, it will be a decidedly refreshing and stimulating situation after being held down for so long by either Government regulations or shortages of burners or oil.

Service Refinement

Little Change in Most Activities, But Some Bright Spots Appear

DISTURBED THROUGHOUT MUCH of the year by problems that they considered more important, such for example as fueloil supply, oilheating dealers in their service departments made little contribution in 1948 to the general advancement of the industry.

The notable exceptions to this conclusion were the growing number of service contracts that included all parts and thus insured the consumer against excessive billings if he ran into bad luck, and the revelation that in one market out of each 13 heard from some fueloil marketer was offering universal burner service to all customers, adding its cost to his oil price.

The amount added to the oil price to cover the expense of universal service ranged from ⅛¢ per gallon to 2¢, but in the large majority of instances it was a half cent.

The two indications of improvement in service relations are more or less of a package, since the intent in each instance is to insure the oilheating user against excessive individual charges that might cause him or her to criticize oil as a fuel to his friends and neighbors and thus nullify a lot of favorable promotion.

The "Service Trends" table shows that only 12% of users, countrywide, had annual service contracts in 1948 as compared to 13% the previous year and 16% in 1946, but the important factor in all of this (which was not measured in earlier years) is that a third of those service contracts included all necessary parts and thus protected the householder against any extraordinary costs.

On the average, the dealer charged $3.73 more for an annual contract with parts than without them, which is more or less in line with the various studies in recent years by FUELOIL & OIL HEAT which pointed to an average across-the-board cost for parts of around three dollars.

The table shows an average service cost per customer of $16.60 for the year compared with $14.39 for 1947, which is just about in line with the general increase in costs of all commodities. It is significant however that only thirty-seven percent of all oilheating users had a summer vacuum cleaning and tuneup job, while the other sixty-three percent had only the necessary emergency service and parts.

If all customers had had a complete annual service including the summer job

they would have spent an average of $21.39, based on the average summer cleaning price of $7.61. This figure is reasonably close to the average charge of $20.66 for those annual service contracts that included both a summer cleaning job and all necessary parts.

In other words the going price for full maintenance and efficiency service is around $20 or $21, or roughly a cent a gallon when applied to the fueloil price. However, experiences of some individual companies reported during the past year have shown that where universal service is adopted, meaning all customers on the same service plan, the cost per gallon is very much lower.

The table shows that the number of customers served by each man has dropped more than 10% during 1948, from 340 to 302. This reflects primarily the improving man power situation, although by no means does it establish a goal to shoot at. This low figure reflects rather the fact that many oilheating dealers are small companies and that they have to have at least one service man regardless of how few customers they may serve. Some of the best managed outfits are able to properly service more than twice that many customers per service man.

Free service remains relatively inconsequential with only four percent of total burner service being rendered without any charge. It is reasonable to expect that there will be substantially more free service in 1949 than in any other post war year up to now, since free service is primarily a concession in oil price and we do face a competitive year, looking ahead.

The average weekly income of service men was off slightly in 1948 from $70 to $68. This does not reflect lower hourly rates as the table on wage rates demonstrates, but rather shows that there are now plenty of good men around in most markets so that it is no longer necessary to require a lot of overtime at premium expense ratios.

Only about a fourth of oilburner service men, countrywide, are in unions, the number having increased only one percent during the year, from twenty-six to twenty-seven. Then, because most union shops are in the large city outfits, the number of dealers who have union men is considerably smaller than that.

In studying the wage rate table it would appear on the surface that the union men earn about 20 percent more than the non-union. It is important however to understand that the union shops are nearly all located in large cities where living costs and general wage rates are high, while the non-union classification includes all of the small cities and villages where living costs and consequently wage rates are low.

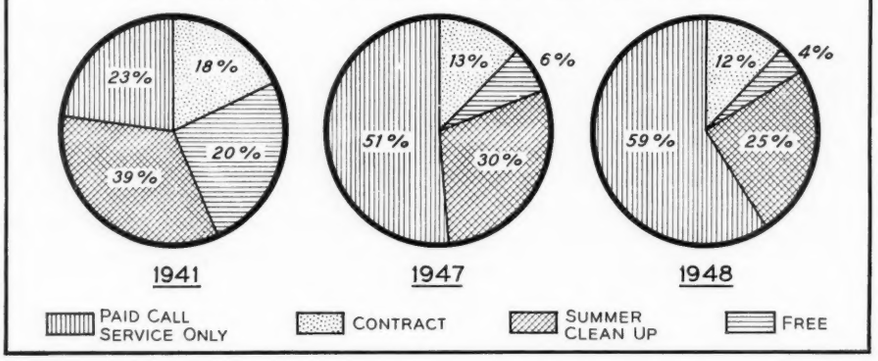
Perhaps the most significant disclosure on the wage rate table is that the lower level, among both skilled men and helpers, is below last year, revealing that it is possible to get new apprentice type

Service Trends of Recent Years

	1948	1947	1946
Average Service Income per Customer	$16.60	$14.39	$12.98
Minimum Charge per Call	3.15	2.91	2.98
Annual Contracts, Percent of Customers	12	13	16
Average Contract Price, With Parts	20.66	20.38	..
Without Parts	16.93	15.03	..
Percent Vacuum Cleaned, Other Than on Annual Contracts	25	25	23
Average Charge for Vacuum Cleaning	7.61	7.28	6.60
Customers per Service Man	302	340	..
Percent of Service Free	4	6	2
Average Service Men's Weekly Income	$68	$70	$62
Percent Union Service Men	27	26	23

LESS SERVICE CONTRACTS . . . BUT MORE INCLUDE PARTS

COMPARISONS OF CONTRACT, CALL AND FREE SERVICE



More Oilheating Dealers Have Sheet Metal Shops

	Own Shop	Use Prefabricated	Farm Out
New England	5	41	56
Mid-Atlantic	15	29	45
Midwest	54	24	20
South	23	8	54
West	60	27	40
1948 U. S. Aver.	28	29	41
1947 U. S. Aver.	25	23	52
1946 U. S. Aver.	25	21	54

Repair Parts and Accessories Sold*

	For Each 1,000 Service Customers	Indicated U. S. Total 1948
Motors	13	52,099
Transformers	9	36,277
Burner Pumps	26	103,305
Circulators	5	21,415
Low Water Controls	6	23,136
Burner Controls	26	105,522
Draft Controls	19	75,434
Nozzles	104	416,993
Combustion Chambers	18	72,356
Air Filters	132	528,673
Oil Filters	54	217,334

*Does not include reconditioned items.

Service Wage Rates per Hour

	NON-UNION SKILLED High	Low	Avg.	NON-UNION HELPERS High	Low	Avg.	UNION SKILLED High	Low	Avg.	UNION HELPERS High	Low	Avg.
New England	2.25	.85	1.69	1.60	.60	1.19	..	..	..	..	..	..
Middle Atlantic	2.25	1.00	1.58	1.75	.75	1.15	2.70	1.20	1.86	2.50	1.00	1.25
Middle West	2.50	1.00	1.68	1.60	.43	1.15	3.00	1.13	2.05	1.95	1.00	1.38
The South	2.35	1.00	1.54	1.60	.75	1.12	..	..	..	..	..	..
The West	2.25	1.25	1.70	1.50	1.00	1.28	2.50	1.47	2.20	2.21	1.15	1.71
1948 U. S. Aver.	2.50	.85	1.63	1.75	.43	1.17	3.00	1.13	1.97	2.50	1.00	1.36
1947 U. S. Aver.	2.33	.88	1.53	1.77	.80	1.10	2.18	1.43	1.81	1.78	1.00	1.31
1946 U. S. Aver.	2.02	1.10	1.44	1.60	.70	1.02	1.99	1.43	1.60	1.57	.91	1.12

Mr. Dealer → COMFORT IS PROFITABLE

MORE PROFIT for you by giving your customers MORE COMFORT with less fuel

HOW? By Installing "Detroit" FAST VENTING on all One-Pipe Steam Jobs

WHY? Thousands of One-Pipe Steam Systems are wasting fuel and heating the houses inadequately, because air is not vented quickly and properly

Automatically fired one-pipe steam plants create a venting problem. To function properly, all the air must be driven out of the mains and radiators with a *rush*—even before pressure shows on the gauge.

You can help your customers and make a good profit for yourself by correcting the sick jobs in your territory. It is easy to do by installing No. 861 Hurivents on the mains and No. 300 Multiports on all the radiators.

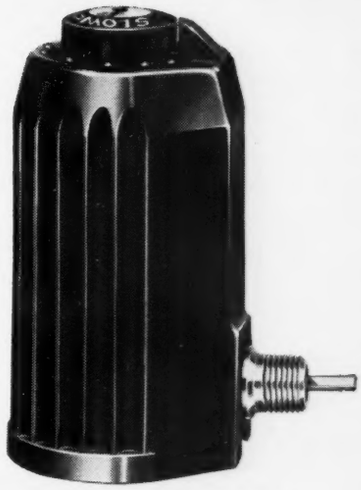
"Detroit" Fast Venting:

1. **Saves fuel.** Steam reaches all radiators quickly. Thus, shorter firing cycles and less fuel.
2. **Balances the system.** All radiators heat uniformly and at the same time.
3. **Provides quicker heating of all radiators.**
4. **Vents radiators quietly.** Vented air effectively muffled by the No. 300.

No. 861 HURIVENT

for Steam Mains

Half-inch port vents steam mains quickly. Will vent 130 feet of 2″ main in 30 seconds at only 4 ounces pressure. Shank threaded ¾″ male and ½″ female N.P.T.



No. 300 MULTIPORT

Radiator Air Valve

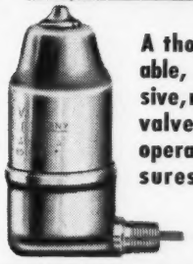
Lets air out fast. Venting rate, with "controlled minimum", adjustable by knob on top of valve. Makes system balancing easy. For pressure up to 3 lbs. Attractively styled black bakelite case. Adjustment knob easily locked to prevent tampering.

AVAILABLE THROUGH ALL PLUMBING AND HEATING WHOLESALERS

OTHER "DETROIT" AIR VALVES

No. 5000 Airid Variport

Adjustable large vent valve for systems operating at pressures above 3 lbs. Wide range of port adjustment with "controlled minimum".



No. 500 Airid Air Valve

A thoroughly reliable, yet inexpensive, non-adjustable valve for systems operating at pressures over 3 lbs.

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5193

Serving home and industry

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manpower without paying unprofitable rates for the learning period. Even in the union shops the lower wage classifications dropped, while the skilled group showed an important increase.

One new factor measured this year for the first time is how dealers handle burner service to farms. Taking the country as a whole, about seven per cent of all oilburners operating are on farms, and this means real working farms rather than business men's country homes. There is considerable geographic variation in this, ranging from a low point of four percent in the Middle Atlantic states to ten percent in the Midwest.

Countrywide, the average dealer will take care of farm service calls without extra charge if they are located within twelve miles of the home base. For greater distances it is customary to add a mileage charge averaging about ten cents . . . that means ten cents per mile each way. Thus, if a farm is located twenty miles from headquarters a burner service call would be charged at $1.60 more than to a farm in the twelve mile limit. Of course there are many individual variations to these practices but it is interesting to get the overall averages showing the consensus of the industry.

Another new question explored for the first time this year resulted from discoveries during the year that a good many service organizations would not handle all types of burners. The composite activity of all companies revealing their own thinking for 1948 in this study embraces only fifty-six percent who will have anything to do with pot-type burners, sixty percent who will render service on vertical rotary burners and sixty-five percent who will answer calls and take care of low pressure atomizing burners.

This brings an implication of some burners being orphans in markets where the dealers who sold them had gone out of business. On the other hand, if there is any blame attached to this it is usually directed at the burner manufacturer because he has so often sold his local franchises on the basis of no competitive dealers being able to get replacement parts or to fully understand how to service his equipment.

Looking ahead into the new year, there is every reason why burner service should bulk larger in management thinking. Fueloil prices, while they will soften a little, will remain high to the point of being considered the luxury fuel, particularly in markets where natural gas is competitive. Good oilburner service at as low a price as possible consistent with avoiding losses is imperative, if the industry is to retain its No. 1 standing in public acceptance.

Certainly 1949 should see a rapid growth in universal service plans of one kind or another, now that they have gotten away to a good start in 1948. Far too many dealers have looked upon service departments as necessary nuisances on which they hope to avoid too heavy losses. There is still no justification for expecting them to return important profits but they should be considered very important adjuncts to public relations, and thus to enlarged sales volume if handled intelligently.

"And another thing, Wilkinson--- if there's one thing I like to see, it's a clean desk! Remember that!"

"He's handsome, witty, rich and single, with the sweetest disposition, and he's madly in love with me. Too bad he isn't my type."

"One shovelful at noontime, eh?" THE SATURDAY EVENING POST

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Leaky Shut-Off Valves

OIL DRIPPING from the nozzle of an idle pressure burner indicates the shut-off valve in the fuel unit is leaky. The valve is not closing dead-tight as it should. In a burner still covered by its manufacturer's one-year guarantee, the trouble is handled by returning the faulty fuel unit to the burner manufacturer and obtaining at no charge either a good fuel unit or repairs to the ailing unit. Meanwhile a spare fuel unit, kept on hand by the burner dealer for the purpose, is used on the burner.

In an older burner, a service man replaces the defective shut-off valve parts on the job, if he is capable of this and has the needed parts on hand, or replaces the entire ailing fuel unit. Removed from a burner because of its leaky shut-off valve, a fuel unit may be repaired in the shop of a well-qualified burner dealer, or, to insure good future performance, it may be shipped to be repaired by its manufacturer or a specialist at repairing burner parts.

Quick diagnosis of shut-off valve trouble is important because service work can be done efficiently and profitably only if the service man does not waste time ascertaining whether or not a shut-off valve really leaks. After-burning, continued burning of oil in the gun tube or firebox after a burner stops with the fire-box red-hot, can be taken as a sign of a leaky shut-off valve only after all other causes of after-burning have been ruled out. The shut-off valve must not be blamed for after-burning caused by some shortcoming not related to the valve. Becoming efficient, quick, and dependable at diagnosing shut-off valve trouble involves, then, a study of all the causes of after-burning.

To begin with, a small amount of air trapped or pocketed in the fuel unit or nozzle line of a pressure burner can cause nozzle drip and after-burning for a few minutes after the burner stops. Hence a newly-started burner often behaves as though its shut-off valve leaks. After a dozen starts and stops, usually the burner is sufficiently rid of air to end the nozzle drip. However, service men sometimes wait a few days and then check back on a brand-new burner to find out if the after-burning has stopped, because certain models rid themselves completely of fuel unit and nozzle line air bubbles only after a few days of actual use. Similarly, burners may act as though their shut-off valves leak for a few days after being serviced in a way which pockets oil in the fuel units or nozzle lines.

After-burning which should not be blamed on a leaky shut-off valve can be caused by a leak at either end of the nozzle adapter. Oil drips into the gun tube and burns there after the burner motor stops. This happens even with the drip hole or slot at the firebox end of the gun tube of a modern burner, intended to drain excessive oil to the firebox or basement floor.

fueloil & oil heat
Short Short Article
on Burner Service

If the air cone becomes wet with oil while the burner runs, on stopping of the burner there may be after-burning.

With a poorly built or deteriorated firebox, or with the oil spray coarse or improper for any reason, while the burner operates some liquid oil may squirt against refractory material, debris, or hard carbon in the firebox. After the burner stops, oil vapor from the oil-soaked material may continue to burn. Don't blame such after-burning on a leaky shut-off valve.

A leaking suction line on an outside tank installation can cause air to enter the fuel unit along with the oil from the suction line. Because this puts bubbles of air into the fuel unit and nozzle line, the burner never is completely rid of air, and the suction line air leak may cause after-burning.

Check the centering of the nozzles in the gun tubes of new burners, since a nozzle badly out of center and about three-quarters of an inch inside the gun tube can cause oil to strike the burner's air-handling parts.

Don't fail to keep in your service kit a good flame mirror to permit you to inspect the firebox with the burner running and idle. That helps tremendously in solving after-burning problems.

Range Oil Sales By Grades and by States U. S. Bureau of Mines

(Thousands of barrels of 42 gallons)

NEW ENGLAND STATES

1	Kero-sene	No. 1 Fuel	1947 Total	1946 Total
Massachusetts	13,567	763	14,330	13,296
Connecticut	4,824	315	5,139	4,442
Rhode Island	2,862	165	3,027	2,524
Maine	2,013	168	2,181	1,763
N. Hampshire	1,305	54	1,359	1,028
Vermont	731	..	731	505
	25,302	1,465	26,767	23,558

MIDDLE ATLANTIC STATES

2	Kero.	No. 1	1947	1946
New York	9,041	430	9,471	8,546
New Jersey	4,791	282	5,073	4,426
Pennsylvania	2,150	351	2,501	1,913
Maryland	1,034	9	1,043	815
Dist. of Col.	279	11	290	165
Delaware	274	..	274	172
	17,569	1,083	18,652	16,037

MIDDLE WESTERN STATES

3	Kero.	No. 1	1947	1946
Illinois	2,522	2,384	4,906	3,934
Michigan	871	876	1,747	1,423
Wisconsin	428	1,060	1,488	1,072
Iowa	566	726	1,292	852
Minnesota	576	879	1,455	1,097
Missouri	711	657	1,368	1,111
Ohio	986	222	1,208	852
Indiana	475	389	864	707
Nebraska	414	135	549	418
Kansas	294	96	390	282
N. Dakota	168	180	348	219
S. Dakota	171	137	308	182
	8,182	7,741	15,923	12,149

WESTERN STATES

4	Kero.	No. 1	1947	1946
California	248	..	248	250
Montana	59	232	291	249
Colorado	95	233	328	253
Wyoming	18	49	67	58
New Mexico	208	33	241	172
Washington	18	..	18	46
Oregon	12	..	12	40
Utah	12	45	57	50
Arizona	27	..	27	31
Idaho	15	49	64	51
Nevada	2	..	2	2
	714	641	1,355	1,202

SOUTHERN STATES

5	Kero.	No. 1	1947	1946
N. Carolina	1,930	39	1,969	1,106
Florida	1,432	76	1,508	1,027
Texas	1,621	23	1,644	1,383
Georgia	1,039	97	1,136	616
S. Carolina	704	71	775	478
Virginia	847	56	903	567
Oklahoma	459	25	484	393
Arkansas	625	121	746	567
Tennessee	697	56	753	498
Louisiana	366	44	410	286
Alabama	387	69	456	299
Kentucky	233	9	242	198
Mississippi	300	13	313	139
W. Virginia	75	3	78	61
	10,715	702	11,417	7,618

TOTAL UNITED STATES

	Kero.	No. 1	1947	1946
U. S. Total	62,482	11,632	74,114	60,564

1947 Fueloil Consumption, United States Bureau of Mines

SALES OF FUELOILS and kerosene reached new levels in 1947, and were substantially greater in volume than in 1945, the year of peak war demands, according to the annual survey by A. T. Coumbe, head of the Petroleum Economics Branch, U. S. Bureau of Mines.

Deliveries of distillate grades were 298,014,000 barrels in 1947, a gain of 24% over a revised total of 239,550,000 for 1946, while sales of residual fuels were up 7%, or from 487,060,000 barrels to 520,529,000 barrels.

Sales of kerosene rose to a record volume of 102,703,000 barrels in 1947, a 17% gain over 88,090,000 in 1946.

The market for distillate fueloils was most active in 1947, and all uses showed important increases, except deliveries to the military forces. With nearly a third more domestic oilburners in use in 1947, and a colder year than 1946, deliveries of light heating oils were approximately 28% above 1946.

The market for No. 1 fueloil was even more active in 1947 with an increase in reported sales of about 38% over 1946.

The sharp upward trend in demand for distillate and kerosene grades has continued into 1948 according to the Bureau's monthly statements. A preliminary estimate for the year indicates that approximately 346,000,000 barrels were consumed in 1948, or 16% above 1947. It should be noted that a considerable part of the 1948 rise was due to last winter's consumption of the high level of 1947 burner installations. In other words, Bureau of Mines figures are on a calendar year basis and should not be confused with the oilheating industry's commonly used seasonal basis.

A larger proportion of total fueloil sales are reported for home heating each year, the share for light grades rising from 50% of all distillates delivered in 1944 to 60% in 1947. The proportionate demand for the different grades of heating oils changes only slightly from year to year, but the current trend is towards the lighter oils. Very little No. 4 grade is now reported, the proportion dropping from about 3% of all light heating oils sales in 1942 to less than 1% in 1947. No. 3 fueloil made up only about 21% of heating oils in 1947, a drop from 24% in 1944. During that period, the No. 2 grade rose from 62% to 64%, and the No. 1 grade rose from 13% to 15%.

The greatly increased demand for light heating oils was evident in all parts of the country, especially in the Atlantic Coast, North Central, and Rocky Mountain areas. Deliveries in the Atlantic Coast states where nearly 60% of the distillate heating oils are consumed rose by 33% to reach 106,119,000 barrels in 1947. All parts of this area reported a large gain in sales of distillate heating oils.

About a quarter of the light heating oils are reported from the North Central states and there the quantity expanded by 26%, while in the Pacific Coast area, sales were up 16% from 1946 to 1947, reaching 19,504,000 barrels. It is expected that 1948 sales will show strongest gains in the Midwest.

Fueloil Sales 1943-47, by Uses

(In millions of barrels)

DISTILLATE 1943	1944	1945	1946	1947	USES	RESIDUAL 1943	1944	1945	1946	1947
113	112	121	140	178	Heating	43	40	44	50	56
6	7	7	8	12	No. 1 Sold as Range	..	..	..	..	..
9	11	14	18	24	Railroads	116	115	112	100	98
11	13	14	12	14	Vessels	62	92	100	88	102
6	6	7	11	14	Utilities	31	34	35	51	61
15	17	19	21	24	Industrial	84	87	91	99	115
1	1	1	2	2	Oil Company Fuel	47	55	57	58	63
33	43	30	9	5	Armed Forces	93	101	97	36	19
14	15	17	19	24	All Other Uses	6	4	5	5	7
208	225	230	240	297	Total United States	482	528	541	487	521
25	43	33	29	30	Exports	15	13	12	9	11
233	268	263	269	327	Total	497	541	553	496	532

Heating Oil Sales
By Grades and by States
Official U. S. Bureau of Mines Figures

(In thousands of 42-gallon barrels)

NEW ENGLAND STATES

1947				Total Distillate			1947		Total Residuum		Grand Totals	
No. 1	No. 2	No. 3	No. 4	1947	1946	1	No. 5	No. 6	1947	1946	1947	1946
1,245	14,698	261	..	16,204	10,417	Massachusetts	2,134	5,164	7,298	4,597	23,502	15,014
594	5,571	649	15	6,829	5,145	Connecticut	673	1,419	2,092	1,599	8,921	6,744
55	2,520	290	..	2,865	2,709	Rhode Island	10	1,352	1,362	711	4,227	3,420
45	1,047	14	..	1,106	809	N. Hampshire	6	264	270	242	1,376	1,051
65	1,650	51	..	1,766	1,079	Maine	1	141	142	182	1,908	1,261
3	614	15	..	632	565	Vermont	13	72	85	81	717	646
2,007	26,100	1,280	15	29,402	20,724		2,837	8,412	11,249	7,412	40,651	28,136

MIDDLE ATLANTIC STATES

No. 1	No. 2	No. 3	No. 4	1947	1946	2	No. 5	No. 6	1947	1946	1947	1946
1,468	26,458	2,641	235	30,802	27,306	New York	1,969	9,518	11,487	10,362	42,289	37,668
943	14,458	2,491	255	18,147	14,390	New Jersey	1,896	3,496	5,392	4,035	23,539	18,425
350	10,765	1,969	25	13,109	7,192	Pennsylvania	1,594	2,315	3,909	3,596	17,018	10,788
86	5,417	420	..	5,923	3,641	Maryland	164	586	750	851	6,673	4,492
65	2,151	..	..	2,216	1,770	Dist. of Col.	36	632	668	727	2,884	2,497
35	536	90	..	661	480	Delaware	..	95	95	85	756	565
2,947	59,785	7,611	515	70,858	54,779		5,659	16,642	22,301	19,656	93,159	74,435

MIDDLE WESTERN STATES

No. 1	No. 2	No. 3	No. 4	1947	1946	3	No. 5	No. 6	1947	1946	1947	1946
1,348	4,762	6,296	215	12,621	11,156	Illinois	2,876	2,517	5,393	5,177	18,014	16,333
1,186	3,985	1,607	29	6,807	5,172	Minnesota	196	91	287	362	7,094	5,534
1,981	2,976	1,935	43	6,935	5,197	Michigan	1,349	919	2,268	2,029	9,203	7,226
535	1,767	1,892	56	4,250	4,090	Missouri	1,630	439	2,069	1,514	6,319	5,604
536	2,747	1,776	17	5,076	4,098	Wisconsin	496	228	724	589	5,800	4,687
512	1,685	384	..	2,581	2,315	Iowa	71	54	125	162	2,706	2,477
499	1,549	669	13	2,730	1,851	Indiana	502	164	666	625	3,396	2,476
550	449	970	5	1,974	1,682	Nebraska	127	19	146	133	2,120	1,815
1,250	322	1,360	71	3,003	1,703	Ohio	220	60	280	197	3,283	1,900
257	325	140	2	724	604	S. Dakota	2	10	12	13	736	617
266	196	81	..	543	489	Kansas	94	92	186	214	729	703
151	257	95	..	503	400	N. Dakota	..	1	1	..	504	400
9,071	21,020	17,205	451	47,747	38,757		7,563	4,594	12,157	11,015	59,904	49,772

WESTERN STATES

No. 1	No. 2	No. 3	No. 4	1947	1946	4	No. 5	No. 6	1947	1946	1947	1946
3,998	..	3,372	..	7,370	7,498	California	4,393	807	5,200	5,660	12,570	13,158
3,923	..	3,260	..	7,183	5,572	Washington	1,751	595	2,346	2,470	9,529	8,042
1,901	..	1,867	..	3,768	2,754	Oregon	1,081	572	1,653	2,278	5,421	5,032
293	..	289	..	582	471	Nevada	46	28	74	73	656	544
350	..	251	..	601	581	Arizona	38	..	38	28	639	609
183	210	175	..	568	482	Colorado	3	..	3	2	571	484
265	159	71	21	516	376	Idaho	..	..	..	..	516	376
149	103	212	14	478	316	Utah	..	..	..	..	478	316
252	150	129	..	531	436	Montana	15	40	55	57	586	493
57	75	40	2	174	141	Wyoming	16	4	20	17	194	158
32	80	14	..	126	110	New Mexico	..	..	..	..	126	110
11,403	777	9,680	37	21,897	18,737		7,343	2,046	9,389	10,585	31,286	29,322

SOUTHERN STATES

No. 1	No. 2	No. 3	No. 4	1947	1946	5	No. 5	No. 6	1947	1946	1947	1946
295	2,084	18	..	2,397	1,384	Virginia	2	263	265	187	2,662	1,571
170	707	215	..	1,092	892	Florida	78	289	367	390	1,459	1,282
159	593	498	..	1,250	1,073	N. Carolina	..	21	21	20	1,271	1,093
55	154	73	6	288	281	Louisiana	..	51	51	50	339	331
157	270	90	..	517	485	Georgia	30	55	85	58	602	543
25	704	223	75	1,027	1,028	Texas	138	77	215	75	1,242	1,103
40	447	40	..	527	348	S. Carolina	6	..	6	8	533	356
80	187	80	..	347	308	Kentucky	26	85	111	115	458	423
3	66	9	1	79	76	Arkansas	..	65	65	55	144	131
22	38	27	2	89	74	Oklahoma	..	..	..	2	89	76
79	159	90	..	328	276	Alabama	4	26	30	11	358	287
24	285	74	..	383	261	Tennessee	..	90	90	95	473	356
10	51	15	..	76	105	W. Virginia	..	..	..	..	76	105
15	35	5	..	55	49	Mississippi	..	..	..	..	55	49
1,134	5,780	1,457	84	8,455	6,640		284	1,022	1,306	1,066	9,761	7,706

TOTAL UNITED STATES

No. 1	No. 2	No. 3	No. 4	1947	1946		No. 5	No. 6	1947	1946	1947	1946
26,562	113,462	37,233	1,102	178,359	139,637	U. S. A.	23,686	32,716	56,402	49,734	234,761	189,371

Controls for Unit Heaters

Failure to Solve Control Problems Gives High Oil Bills

by
J. W. Schulz

DEAR EDITOR: *I need help because a certain competitor, moving in on jobs I completed in recent years, guarantees (then often succeeds) in cutting the oil consumption anywhere between 25% and 50%. He does not improve combustion, CO_2, draft control, fireboxes or anything like that because he can't. Combustionwise, my jobs are all close to tops.*

He moves in on my unit heaters installations where I've installed the entire heating plant or just the oilburners and the electric controls, and according to my check-ups on what he does he simply installs different wiring and controls. As that produces great fuel savings which I've been unable to achieve, even by installing as many as four room thermostats for a job with only three unit heaters, I've come to the conclusion that I need a thorough understanding of the proper and improper controlling of heating plants made up of unit heaters.

Confidentially, Worried Reader.

Especially on unit heater installations, proper control layouts and adjustments are needed if the fuel bills are to be so low that a competitor who is really expert at controls can't revamp the wiring and controls and wind up with worthwhile fuel savings. "Worried Reader," who actually signed his name and address because he wanted a reply by mail, did not say whether the unit heaters worrying him were in steam or hot water heating plants, and did not describe the control methods he used.

He did mention using four room thermostats for a plant with three unit heaters. We happen to have at hand some recently obtained before-and-after data about an installation with four steam-type unit heaters, on which five room thermostats were tried out at first. Using one thermostat for each unit heater plus one more thermostat for the oilburner wound up with sky-high oil bills. To say there was "interference" between the oilburner thermostat and the thermostats starting and stopping the unit heater motors is putting it mildly.

This case history involves a burner dealer who did not install the heating plant. He simply sold the burner, burner controls, and oil tank needed for this taxpayer, which was a little building that included four stores, each heated by its own steam-type unit heater. No control difficulties were anticipated; the steam boiler would not even provide summer-winter hot water.

As the heating plant was being completed, the contractor installing it telephoned the burner dealer and asked about controls for the unit heaters. These controls were to be provided and installed, of course, by the heating contractor, not the burner dealer.

"First, at each of the four unit heaters you install a reverse-acting temperature control mounted on the return line close to the unit heater and wired to keep the unit heater motor idle when running the fan would blow cold air around," the burner man told the heating contractor, glad of the opportunity to make certain that someone else would install plenty of controls for the unit heaters. "Second, in each store, on an inside wall, you install a room thermostat wired to keep idle the unit heater in that store when the store temperature is sufficient.

"On top of what you install, I'm going to put my oilburner thermostat in the store occupied by the owner of the building. In that store, there'll be two thermostats side-by-side, one for the unit heater and one to start and stop the oilburner."

You can't ask for more complete controls, the burner dealer thought to himself. Of course, each unit heater's got to have a reverse-acting temperature control so that its motor will run only when there's steam in the element of the unit heater. And of course it'll be dandy to have a room thermostat in each store to cut off the heat when the store is warm enough; that will provide real zoned heat for each store. There's no getting around the fact that a room thermostat goes with the burner installation. That thermostat has to be put somewhere; logically it will go in the owner's store. We'll call it the master heat control for the whole system.

The accompanying "Before" diagram shows the control wiring that was used. For simplicity since the four unit heaters were controlled identically, but two of the four unit heaters are shown. In the live line to the burner control panel are the steam pressure control used as the high limit control of the steam boiler, and the low level water control which was part of the automatic water feeder installed by the heating contractor.

"You'll have very low oil bills, all right," the burner dealer told the building owner the day the burner was started and tested. "The stack temperature is only 540° and the CO_2 is up to 11½%, pointing to 83% combustion efficiency with only 17% total stack loss not counting the heat you get in your store from that chimney behind it. To you, all these technicalities mean oil bills half the size of what anybody else

THE GILBARCO OIL-FIRED SUSPENDED FURNACE is suspended from ceiling by four steel eye-bolt hangers. Completely out of the way. Permits full utilization of valuable floor space. Available in two sizes—100,000 and 200,000 BTU per hour.

A NEW ECONOMICAL WAY TO HANDLE A WIDE RANGE OF TOUGH HEATING JOBS

Ideal for Service Stations, Garages, Stores, Homes

Easy to Install! The Gilbarco Oil-Fired Suspended Furnace is completely assembled and wired at the factory. The burner is already mounted. You merely install oil piping and carry wiring to the power outlet and thermostat.

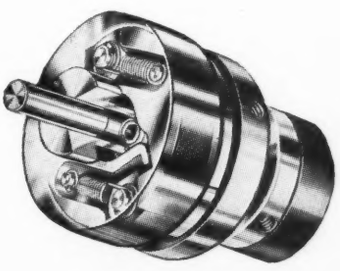
Easy to Sell! Because it saves on space, saves on fuel, and saves on installation cost, this new suspended unit is proving immensely popular in today's increasingly cost-conscious market. Get all the facts on this profitable item now! Some franchises are available west of the Appalachians. Write for full information today.

Gilbarco

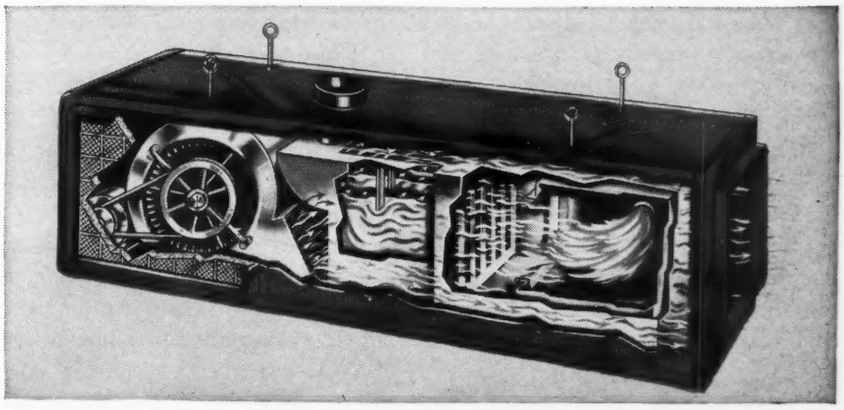
THE OIL BURNER WITH THE ECONOMY CLUTCH

Gilbert & Barker Manufacturing Company
West Springfield, Mass., and Toronto, Canada

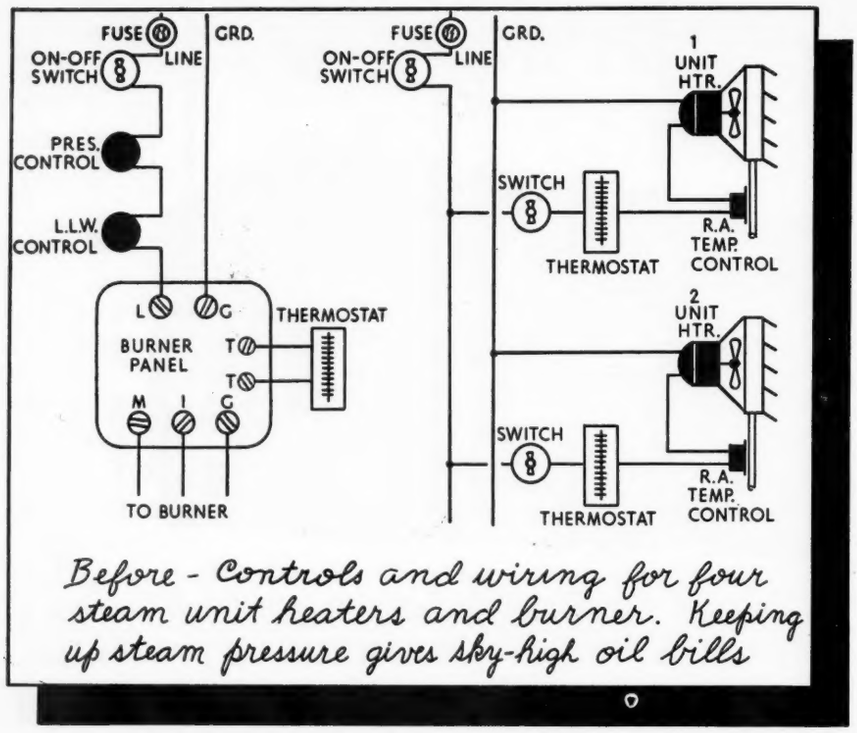
CONVERSION AND REPLACEMENT BURNERS • BOILER BURNER UNITS
WARM AIR CONDITIONERS • INDUSTRIAL BURNERS



THE EXCLUSIVE ECONOMY CLUTCH—Famous Gilbarco fuel-saving feature reduces heat-wasting soot. Starts burner fan *before* combustion and continuing fan operation several seconds *after* combustion has ceased.



COUNTERFLOW PRINCIPLE OF HEAT TRANSFER—a *fuel-saving* feature of the Gilbarco suspended unit. Hot combustion gases move opposite to flow of heated air, accomplishing maximum transfer of heat through all parts of furnace.



Before - Controls and wiring for four steam unit heaters and burner. Keeping up steam pressure gives sky-high oil bills

runs in the same size building."

Jovially, the burner man then told the owner about setting the thermostats. In each store, including the owner's, the room thermostat that started and stopped the unit heater motor was to be set for the temperature desired in the store. About 72° would do for the start.

Then since the owner had the oilburner thermostat in his store in addition, to start the heat and regulate the amount using his master control, the owner would set up his oilburner thermostat until the burner started. With the boiler located right behind his store, luckily the owner could hear it, so could tell when he had set up its thermostat far enough to start it. The system worked like magic when, following these instructions, the owner started it. Within an hour and a half all the unit heaters were spinning merrily, pouring heat into the new stores. In each of the stores, setting down the thermostat for the unit heater would turn off its motor, setting up the thermostat would start the fan motor again and give additional outpouring of heat from the unit heater. Slapping each other on the back in pleasure, the building owner and the burner dealer went from store to store trying the thermostats. The owner said he'd get more fun out of this high-falutin' new kind of heating plant than from his small son's electric trains.

A little trouble came up the first month of the heating season, however, and the building owner had to call in the burner man for explanations and reassurance. The other storekeepers, the tenants, often complained that setting up their room thermostats gave them no heat, didn't even start the unit heater motors, and the stores often were chilly.

"First thing," explained the burner dealer, "they can't expect to see those unit heater fans running all the time. They'd like that, but they're not paying for the oil.

"Next thing, of course when there's no steam in the heaters the motors won't run, not even for the room thermostats. Each unit heater has a reverse-acting temperature control just to prevent the heater from running when it shouldn't and blowing cold air.

"Third thing, of course you've got to give them some heat. When a kick about not enough heat seems reasonable, raise up your room thermostat that starts the burner. Make sure the burner runs. Set the thermostat high enough."

The owner pointed out that his store had two thermostats side-by-side, one for the unit heater and one for the oilburner. At times he could start the burner easily enough by setting the burner thermostat at 72. But within half an hour his unit heater motor started, the store temperature jumped up as warm air poured from the heater, and as a result the burner would stop quickly, before the tenants' stores had enough heat.

"In a case like that," the burner dealer explained patiently, "Set your oilburner thermostat high enough by all means to keep the burner running. You may have to set it at 75°. Also, set down your unit heater thermostat, located next to the burner thermostat, to keep your own store cool so the burner doesn't stop and make your tenants complain."

Following these instructions kept the burner starting and stopping on its steam pressure control all day, even in mildly cold weather, the burner man learned a month later after the owner had told him that the burner was using about three times as much oil a day as was reasonable.

Uses 60 Gallons A Day

"I use 60 gallons of oil a day in mild weather when I keep up steam by setting my burner thermostat higher than my unit heater thermostat located next to it," exploded the building owner. "My unit heater starts and stops nicely then, keeping the store at any temperature I set on the unit heater thermostat, and my tenants' unit heaters all start and stop nicely for their thermostats because I keep up the steam pressure. But the oil bills are terrific. So then to save oil I set my burner thermostat lower than my unit heater thermostat. The burner starts and stops on its thermostat then, with the unit heater in my store taking a run each time the burner runs long enough to send steam to the unit heater. But usually the other storekeepers freeze, maybe because their doors are open more than my front door, or maybe because I get heat from the chimney and boiler room and they don't. Usually when they are cold and set up their thermostats nothing happens; their unit heater motors won't start because there's no steam.

"It's a feast or a famine with the heat, depending on which of my two thermostats I set higher.

"You got the controls you asked for," concluded the owner at the top of his voice, "and you put in the oilburner that's either wasting all my fueloil or freezing my tenants so they're going to sue me. You've got to cut out the con-

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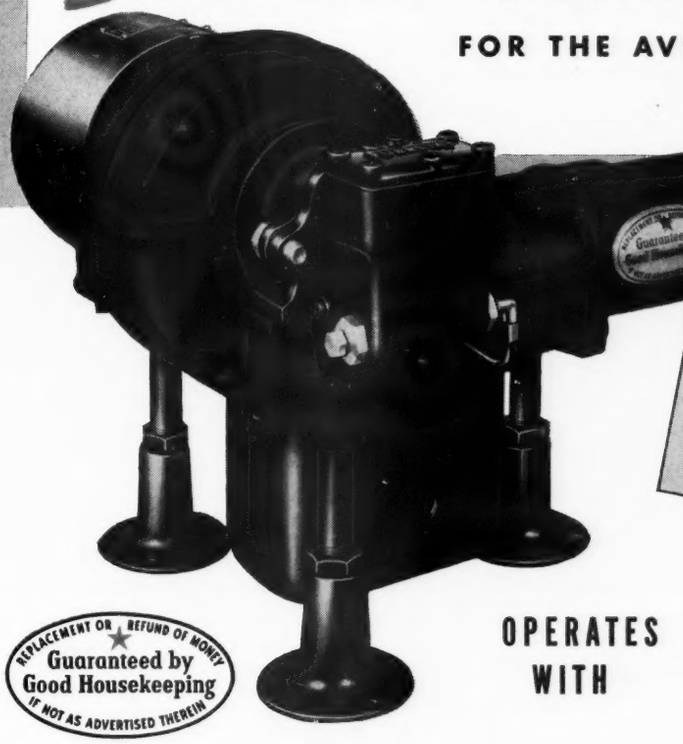
FOR THE AVERAGE AMERICAN HOME



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OPERATES WITH WHISPER QUIETNESS

Here's Silent Glow's answer to lower cost automatic oil heat for the average American Home. It's the great new Air-Seel '600' with *proven features* of performance and economy never before found in an oil burner at anywhere near its low price. Air-Seel '600' ranks as today's biggest oil burner value. *It costs less to buy* because it is mass produced for the mass market. *It costs less to operate* because of the great heat-saving Air-Seel feature. It is manufactured strictly in accordance with Commercial Standard CS75-39 and is warranted to burn 100% catalytic cracked oil when fired at the prescribed gallonage of .75 to 1.35 G.P.H. You can sell the new Air-Seel '600' to the big small home market that exists right in your own community . . . and Silent Glow is helping you to sell it with a promotional program that's making sales history.

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fuel oil & oil heat

trol monkeyshines and give me the good, low-cost heat you promised me. It goes without saying that my tenants, who you've gotten all kinds of crazy about the heat by now, have got to be satisfied. They've got to be able to use the room thermostats you put in for them."

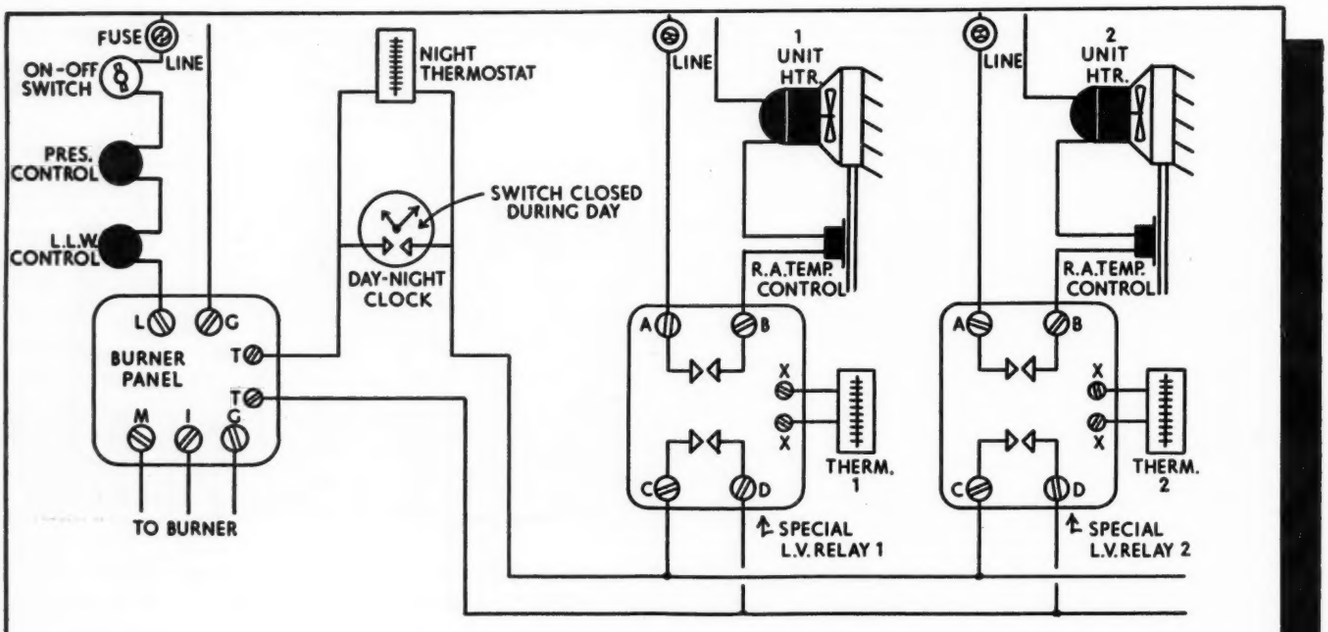
Besides, the building owner now wanted automatic reduction of the building temperature at night to save more fuel than he could save using plain thermostats. He was willing to pay a reasonable extra amount for the automatic day-night feature, he said.

Some lengthy discussions of a dozen seemingly good control arrangements, which he went through with the heat control specialists he looked up, led the burner dealer to the controls and wiring shown in the accompanying "After" diagram. Again, this shows but two of the four unit heaters, since all four are wired identically.

In this "After" diagram, two special relays are shown. When either snaps in because the room thermostat connected to it indicates heat is needed and closes the "X-X" low-voltage circuit of the relay, two separate sets of contacts close. Contacts "A-B" close and forward electricity to the reverse-acting temperature control; therefore when steam reaches the unit heater and affects this control the unit heater motor will start. Contacts "C-D" close and complete the "T-T" low-voltage thermostat circuit of the burner panel, starting the burner so that steam will be generated for the unit heater which is waiting for steam. Setting up a room thermostat in any of the four stores starts the burner, but the burner stays idle when all four thermostats are in their "off" positions. Thus the burner runs, and the boiler becomes hot only when one or more of the four stores needs heat. If after setting up his room thermostat a tenant has to wait until his unit heater motor starts, at least he has the satisfaction of knowing that he started the burner when he raised his thermostat setting and in a few minutes will obtain the heat he desires. Regardless of how much the burner may be operating and making steam because the other stores need heat, no store is overheated with these controls because setting down the thermostat in any store keeps idle the unit heater in that store.

The night thermostat, which is shunted all day by the switch in the day-night clock, is located in the owner's store. Set at 60°, it starts the burner only when all the stores are chilled well below the 70° at which the unit heater thermostats usually are set (the owner declares no lock devices are needed on his tenants' room thermostats to prevent their being set too high; continually visiting his tenant storekeepers, he makes certain their thermostats are set only reasonably high). Night regulation of the heat by this single night thermostat is admittedly crude compared to the day regulation of what now is really a four-zone system, but this satisfies the owner who knows the reasons for this.

One additional control, not shown in the "After" diagram, was installed to play safe. This is a reverse-acting steam pressure control, set for 10 lbs. steam pressure and conveniently connected to the unit heater closest to the boiler room (in the store used by the owner of the building). The high limit steam pressure control is set at 4 lbs. pressure, and usually the steam pressure of the boiler will not exceed this. There is the possibility, however, that after a long oil-burner "on" period on a severely cold day, all four unit heater motors may stop nearly simultaneously when the oil-burner firebox is cherry red-hot. Heat from the firebox might, to judge from experiences on other installations, under these conditions cause the boiler to build



After - Burner stays idle when rm. thermostats 1 and 2 are "Off." When Therm 1 snaps on, special relay 1 snaps in – contacts C-D start burner. Contacts A-B also close; unit htr. 1 starts when R.A. control gets hot

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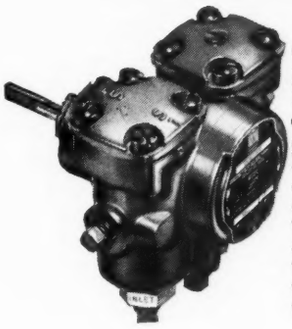
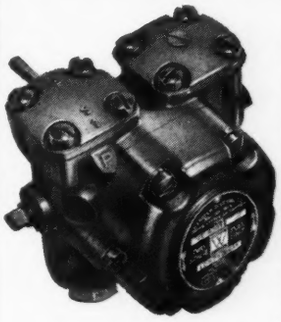
Top Quality Products to Meet ALL Needs . . . For Original Equipment or Replacement

If It's A Single Stage Fuel Unit You Need . . .



The Webster Electric Type "Q" Single-Stage Unit will deliver 13 gallons per hour at nozzle connections based on No. 3 oil at 100 lbs. pressure at 1750 R.P.M. A filter cartridge is available that is interchangeable with old strainer for protection of small nozzles. It has all the high quality features which have made Webster Electric Fuel Units so popular in the oil burner industry.

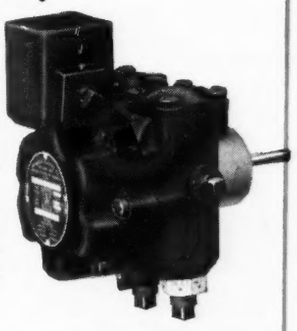
Two-Stage Fuel Units Meet Needs of all Two-pipe Systems



The Webster Electric Type "T" Two-Stage Fuel Unit is available in two different capacities. The Type "1-T" will deliver 13 gallons per hour. The Type "2-T" and "4-T" will deliver 20 gallons per hour at the nozzle connection based on No. 3 oil at 100 lbs. pressure at 1750 R.P.M. A filter cartridge is available that is interchangeable with old strainer for protection of small nozzles. All unit data is shown on nameplate.

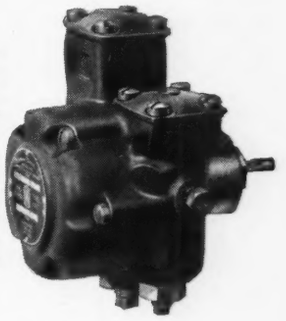
Instantaneous Cut-Off Unit Electrically Controlled . . . The Modern Way

The Webster Electric Instantaneous Cut-Off Unit provides for immediate cut-off of the fuel supply when the burner motor shuts off. It is designed for attachment to standard Webster Electric Fuel Units for new equipment or for converting present equipment. Its use permits boilers to stay clean longer, to operate more efficiently, positively eliminating after pulsation.

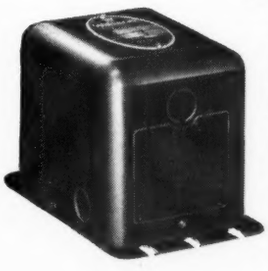


Burn up to 20 G.P.H. Without Use of an Auxiliary Strainer

With the Webster Electric Type "4-T" Two-Stage Fuel Unit, burning rates up to 20 G.P.H. may be obtained without the use of an auxiliary strainer. This is accomplished by the use of an extension strainer. All other features are interchangeable with the standard Webster Electric "1-T" Unit. The large-capacity suction stage empties the lines quickly.

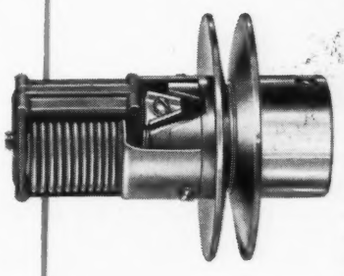


Two Basic Transformer Models Fit All Ordinary Requirements



The Webster Electric Series 311 and 321 Ignition Transformers offer wide adaptability for use in streamlining new beauty for high efficiency burner design popularly required today. Small and compact, these transformers offer optional choice of such features as the oversize "E" junction box and multi-positioned box connectors, six standard types of secondary terminals and many variations of mounting plates.

Thermodrive...Controlled Air Circulation...the Newest Aid to Warm Air Heating Performance



The Webster Electric Thermodrive . . . a variable speed blower control . . . is a major development in the control of warm air heat distribution. It is easily installed on all types of forced air systems whether the converted gravity type or the more modern furnace blower units. It completely eliminates cold air blasts at the start, hot overruns at the end of the heating cycle. Economy and comfort results.

Webster Electric Fuel Units are made in Canada by Canadian Acme Screw & Gear, Ltd., Toronto, Canada.

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RACINE WISCONSIN

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fuel oil & oil heat

up to the 15 lbs. steam pressure which opens the safety pressure-relief valve on the boiler. By turning on one nearby unit heater and thus placing load on the boiler at any time when the boiler steam pressure exceeds 10 lbs., the extra, reverse-acting steam pressure control makes certain that never will the boiler's pressure-relief valve be opened.

The 110-volt feed lines needed to give current to the low-voltage transformers in the special relays of the "After" diagram are not shown in the diagram. This diagram is schematic only, and does not indicate particular makes and models of controls and relays. All the parts needed for this special control layout are, however, readily obtainable from manufacturers and well-stocked specialty companies which sell burner parts and controls to burner dealers.

Diagrams of this type must be well understood by service men who must answer service calls on systems involving unusual wiring, as well as by burner dealers who must employ usual wiring and control layouts to minimize the fuel bills of special installations.

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1. The Bethlehem Dynatherm employs an entirely new principle of oil burning—the "whirling flame" for maximum efficiency and economy. The Dynatherm is designed about this flame.

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BETHLEHEM, PENNSYLVANIA

Federal Trade Official Explains Proposed N.E. Rules

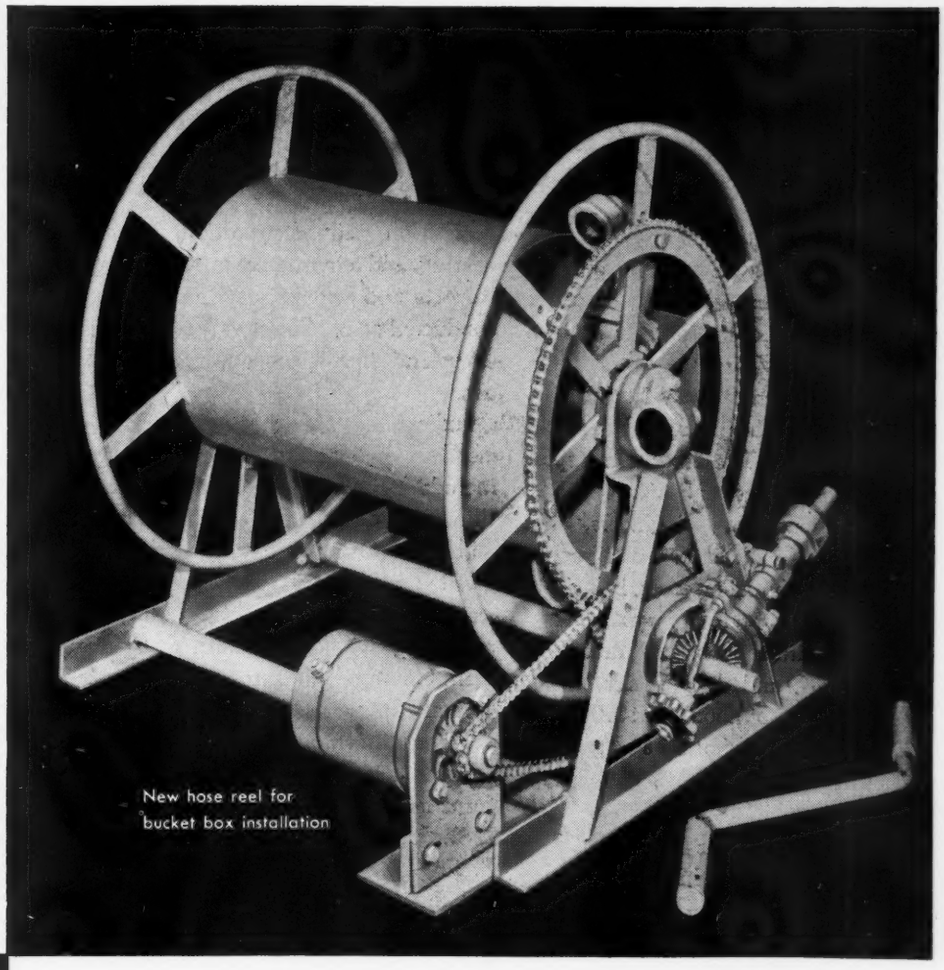
IN AN ATTEMPT to clarify the impression gained at the hearing on the proposed Code of Fair Trade Practices for New England that the rules might apply outside the six-state area, Calvin P. Bartlett, attorney for the Oil Heat Institute of New England, has asked for a statement by Federal Trade Commission officials. Certain statements made at the hearing in Boston were construed to mean that the rules, if and when adopted, might be applicable to other parts of the country.

Answering Mr. Bartlett's request for a statement, Paul M. Cameron, chief of the Rule Making Division, wrote, "The proceedings for your group are directed to the establishment of trade practice rules for the New England trade area. Consequently, the rules when finally approved should be applicable to the business in that trade area only. They would not, as such, be applicable to other areas of the United States. However, it should be understood that the laws on which the rules are based do have general application throughout the United States as in the case of any other general federal law.

"For instance," Mr. Cameron continues, "if sales of products in commerce are made under conditions or circumstances which mislead and deceive purchasers, such practice would undoubtedly come within the inhibitions of the Federal Trade Commission Act irrespective of whether or not rules are in effect in the area where the offense takes place. As you are no doubt aware, Section 5 of such Act provides that 'unfair methods of competition in commerce and unfair or deceptive acts or practices in commerce are unlawful.' "

"I don't want you to feel uneasy all evening, Ed, so don't worry- I'm not going to ask you about that $10. you owe me"

new low-priced hose reel operates over 1,000,000 revolutions without losing a drop



New hose reel for bucket box installation

Self-tightening seal enables it to stand up under toughest, heaviest work-loads

It's new. It's different. It's better. It's the finest hose reel ever built. It will never wear out. It's just what you might expect from a company that has been an acknowledged leader in the field for many years.

To prove this new reel, we picked one from stock at random and subjected it to exhaustive tests. We operated it for more than a million revolutions under constantly changing pressure from zero to 50 pounds per square inch. Part of the time we used fuel oil, the remainder of the time we used gasoline. During the test the seal was not adjusted in any way. And what was the result?

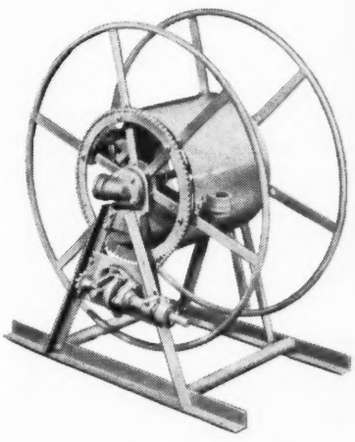
At the end of the test, the reel was completely dry. It hadn't leaked a single drop. It was not sweating.

The secret lies in the swing joint's new, self-tightening seal that eliminates packing and enables the reel to rotate freely at all times. And if this seal should ever need to be replaced, you can do the job in a few minutes, without breaking any pipe lines.

This compact reel has many other features that make it your best buy. It is light in weight (a reel holding 100 feet of 1¼-inch hose weighs but 85 pounds); the swing joint is designed with clear, uninterrupted passages; every part is steel, malleable iron, or bronze—no cast iron is used; the rigid base is welded throughout; six ball bearings with hardened and ground races are used on every reel; all working parts are easy to get at; the reel can quickly be unbolted from its supports.

This reel is available now, in any size or shape, hand-operated or power-driven, for installation either in the bucket box at the rear, or in the underslung box at the side of the truck. Delivery can usually be made within a week from receipt of order. For sizes, prices and more detailed information write today for Bulletin 175.

Special folder available on air, electric, or hydraulic hose reels.



New hose reel for side box installation

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Scientific Industries, Inc., 3266 Motor Avenue, Los Angeles 34, California

Three Hundred Manufacturers Exhibiting at Heating Show

MORE THAN three hundred manufacturers of complete systems and specialized components have reserved exhibit space at the 9th International Heating and Ventilating Exposition, scheduled to open January 24 at the International Amphitheatre, Chicago and close January 28. The exposition is sponsored by the American Society of Heating and Ventilating Engineers, Inc., New York 10, N. Y., in conjunction with its 55th annual meeting, being held at the Stevens Hotel, Chicago.

The exposition opens on January 24 at 2:00 P.M. and daily thereafter between the hours of noon and 10:00 P.M. Admission is by invitation and registration only, without charge, but excluding the general public.

The catalog of the exposition lists manufacturers who exhibit all varieties of equipment required for the partial or complete climatizing of indoor space. To be shown is a great deal of equipment that has been redesigned to take advantage of materials and processes that were developed during the war and which only now have become available. Products of a number of manufacturers of smaller units in completely packaged form are included, along with equipment items, complete machines, boilers, heat exchangers, tanks, instruments and controlling devices of all kinds, piping, valves, traps, regulators and other accessories.

Exhibit groups include the air conditioning group, both winter and summer; combustion group; hydraulic group; steam and hot water heating; air groups; control group; refrigerating group; central heating group; insulating group and auxiliary group.

The annual meeting of the ASHVE will run from January 24 through January 27, preceded by preliminary meetings of committees and the council. Five technical sessions have been planned, after the meeting is opened officially on Monday, January 24, by Prof. G. L. Tuve of Case Institute of Technology and Society president. Among subjects to be discussed are fuels and industrial ventilation, air distribution, radiant heating and environmental conditions. Reports also will be made on research conducted at the Society's laboratory in Cleveland and at cooperating universities.

Indications are that almost 2,000 members will attend. Special speakers include Dr. Henry T. Heald, president, Illinois Institute of Technology, who will address the January 24 luncheon; Cyril Tasker, ASHVE director of research, who will be heard at luncheon on January 25. John Howatt, past-president, Chicago, will be toastmaster at the annual banquet, January 26.

Among technical papers scheduled for sessions during the week are: "Performance of Residential Chimneys," by L. B. Schmitt, research engineer and R. B. Engdahl, supervisor, Batelle Memorial Institute, Columbus, Ohio.

"Heating a Basementless House with Radiant Baseboard," by R. H. Weigel, special research assistant and W. S. Harris, special research associate professor of mechanical engineering, University of Illinois.

"Air Distribution and Draft," by John Rydberg, director of technology, and Per Norback, research engineer, Royal Institute of Technology, University of Stockholm, Sweden.

"Performance of an Electrical System of Radiant Panel Heating with Four States of Insulation," by R. J. Lorenzi, research engineer, John B. Pierce, Laboratory of Hygiene, New Haven, Conn., and J. F. Schreiber, development engineer, Mechanical Goods Div., U. S. Rubber Co., Passaic, N. J.

"Overall Coefficients for Flat Glass, Determined under Natural Weather Conditions," by G. V. Parmellee, research associate and W. W. Aubele, assistant research engineer, ASHVE Laboratory, Cleveland.

"Performance of Fourteen Masonry Chimneys under Steady State Conditions," by Paul R. Achenbach, assistant chief and Selden D. Cole, mechanical engineer, heating and air conditioning section, National Bureau of Standards, Washington.

List of Exhibitors*
9th INTERNATIONAL HEATING & VENTILATING EXPOSITION
International Amphitheatre—Chicago
January 24-28, 1949

	Space No.
Ace Engineering Co.	321
Acme Equipment Co.	126
Acme Industries, Inc.	620
Aerofin Corp.	1317
Air Control Products, Inc.	933-935
Air Controls, Inc.	124-225
Air Devices, Inc.	843
Air Filter Corp.	1342
Air-Maze Corp.	141
Air-O-Cel Co.	1211
Airtemp Div. Chrysler Corp.	814
Airtherm Mfg. Co.	1121
Aldrich Company	243
American Air Filter Co.	302 & 401
American Artisan	525
American Gas Association	1232-1234
American Hydrovac, Inc.	1340
American R. & S. Sanitary Corp.	708
American Soc. of Htg. & Vent. Engs.	903
American Steel & Wire Co.	232-331-333-335
American Thermal Industries, Inc.	1301
Ames Iron Works	101
Anchor Div., Stratton & Terstegge Co.	912-914
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Armstrong Machine Works	915-917
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Austin Heating Service	107-109-111
Au-Temp-Co Corp.	908
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Automatic Products Co.	413-415
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Climax Machinery Co.	1328-1330
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Combustion Control Corp.	414

*As of December 29, 1948.

(Continued on page 98)

fueloil & oil heat

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THE SELLING MAN
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CATALOG OF OILBURNER MANUFACTURERS
350 names of manufacturers of all types domestic, industrial, and commercial conversion burners, boiler and furnace burner units, space heaters, cooking equipments, water heaters, etc. Also 400 trade names. Gives location of company, names of principal executives, and list of products (not specifications). 20 pages, 7″ x 10″. All paper. No covers.
$2.

BASIC SERVICE TEXT FOR PRESSURE TYPE BURNERS
This manual was prepared by G. T. Kaufman, technical secretary of the Oil Heat Institute of America, and is intended for basic training of installers and service men in residential oil-heating. It is also a useful reference source for those who have completed the training courses. A good, elementary book. Contains quiz questions to brush up with. Pocket size. 216 pages. Paper covers.
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OIL HEATING HANDBOOK
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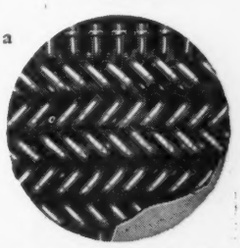

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National Warm Air Association Extends and Expands Program

THE 35TH ANNUAL CONVENTION of the National Warm Air Heating and Air Conditioning Association, Cleveland 14, Ohio, held at Cleveland on December 9 and 10, heard committee reports which demonstrated its continuing attitude of progressive thinking. The principle objective of the Association was reaffirmed as a program to improve constantly the design, engineering, installation and operation of warm air heating and air conditioning systems as a means of increasing owner and user satisfaction.

The research program, inaugurated by the group in 1918, has grown to the point where it is being conducted at three separate locations on the campus of the University of Illinois. Projects are under way at the Warm Air Research Residence, the University Small Homes Council Research Residence and the Mechanical Engineering Laboratory. At the Warm Air Research Residence there were instituted during 1948 a series of studies on a forced warm air convection heating system and a warm air ceiling panel heating system in the first full year in which the residence has been used for heating study.

A report consisting of a comparison in the performance between the conventional forced warm air system and the ceiling panel system, as demonstrated in tests conducted during the 1947-48 heating season, has been completed and reviewed by the Panel Heating Sub-Committee of the Association's Research Advisory Committee. During the same season, a gravity warm air extended plenum system was tested at the Small Homes Council residence. Tests conducted could not be so thorough nor lead to as complete an analysis as was desirable, because of limited instrumentation and other factors. The information collected, however, was sufficient to permit drawing tentative conclusions and the results will be published in an Engineering Experiment Station Circular. Tests will continue this heating season.

At the Mechanical Engineering Laboratory three tests have been under way —a furnace-blower performance project, an extended plenum fittings study and a study of the balance of air distribution in a duct system. These projects also will continue this year.

Four men now staff the Association's research program. Headed by Robert W. Roose, in charge of this activity, other members are Norman A. Buckley, Morris E. Childs and George H. Green.

Supplementing the program already established, the Association's Board of Directors has authorized construction of two new research residences, together with an instrument shed, to be erected on plots adjacent to the Warm Air Research Residence. In one house there will be conducted tests of low cost heating systems, with tests of gravity furnace operation and wall heating appliances to be made in the other residence. Both are scheduled to be ready for use

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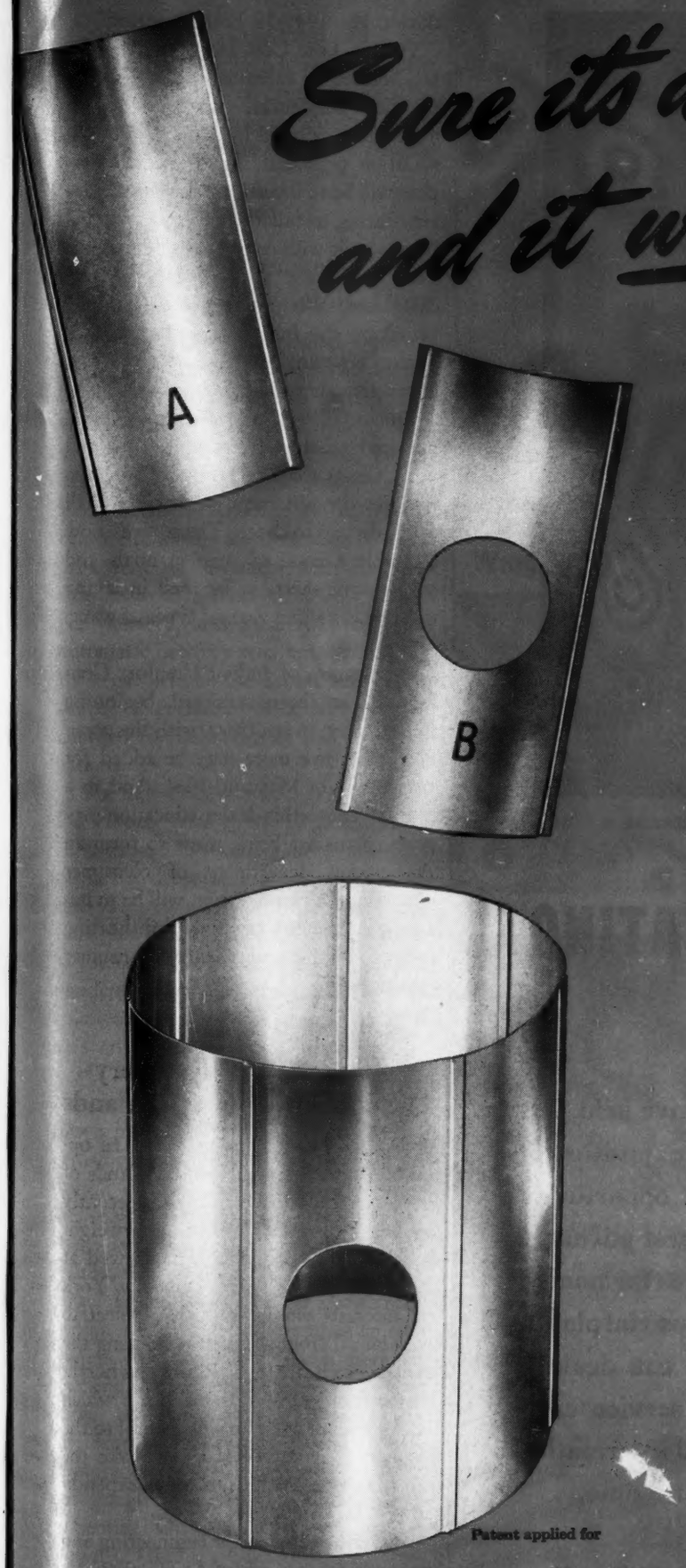

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MANAGEMENT INTERNATIONAL EXPOSITION COMPANY

during the 1949-50 heating season.

A new Low Cost Housing Committee, formed to supervise tests at one of the new residences, consists of seven members appointed by Atlee Wise, Association president. Their specific purpose will be to investigate low cost warm air heating installations in basementless houses built with concrete slab floors. As soon as possible after tests have been completed, a tentative manual will be issued by the Installation Codes Committee, covering the design of the low cost warm air system selected.

During 1948 the Association announced it distributed more manuals and work sheets than ever before, and also completed revisionary work to bring all manuals up-to-date. There are now available a total of nine manuals and seven work sheets to be used in laying out and installing various types of warm air heating.

A program of Indoor Comfort Conferences has been arranged, beginning in February, in ten cities, with the possibility that five more may be added for the months of May and June. And, as a supplement to this dealer education program, plans are being made to form an Association department of consumer education, whose function will be to impart the benefits of warm air heating systems to the user through consumer publications.

Syndicate Plans Recovery From Canadian Oil Sands

PLANS to spend $50,000,000 in an operation to recover oil from the sands of northern Canada were revealed recently by Gene Tunney, former heavyweight boxing champion, when interviewed at Edmonton, Alberta. He said New York oil interests would back the project to reclaim oil from the tar sands along the Athabaska River, about 250 miles northeast of Edmonton. The syndicate which he represents has made a proposal to the Alberta Government to undertake the work at an estimated ultimate expenditure of $50,000,000.

Present plans call for engineering and research to cost about $1,500,000, according to Mr. Tunney. On the success of this work will depend the further expansion of the project.

Canada badly needs domestic oil pro-

duction. Effects of the giant Leduc field have not been fully felt as yet. Of the 8,477,324 barrels of crude received by Canadian refineries in August, only 1,225,511 barrels were from Canadian sources.

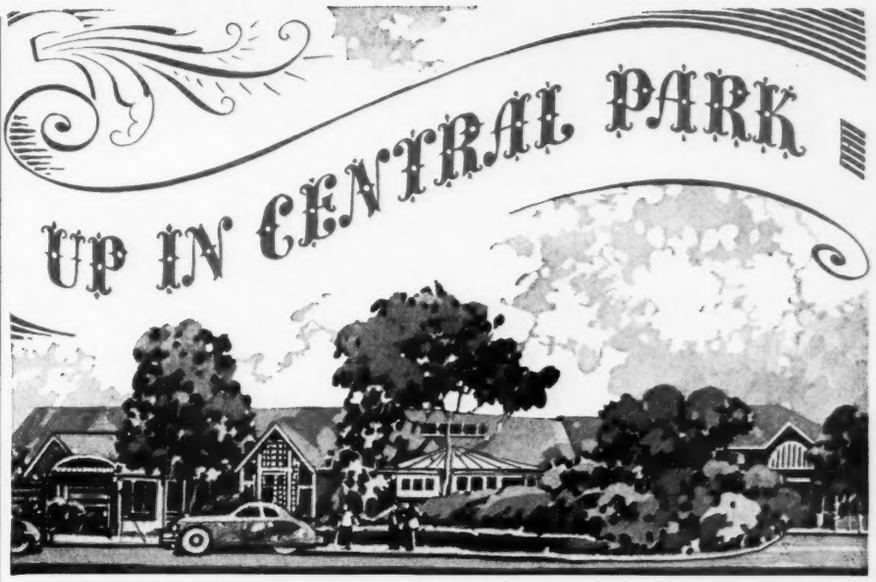
Adopt Price Brackets On Size of Fueloil Drop

ECONOMICS has accomplished what repeated urging in these pages has not been able to do; establish price differentials in the New York metropolitan area by size of the individual fueloil delivery. Fueloil prices posted by E. Robison, Inc., Hartsdale, N. Y., on December 6, allows an advantage of 3/10 of a cent to customers with sufficient storage to take more than 300 gallons per delivery, and to all customers on automatic delivery who have the capacity regardless of the actual size of the drop. A premium of a half cent is charged for deliveries of less than 150 gallons.

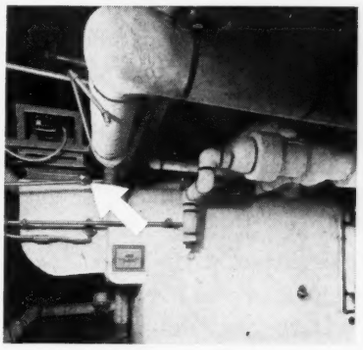
The new prices are 13.3 cents per gallon for deliveries up to 150 gallons; 12.8 cents from 150 to 300 gallons, and 12.5 cents for drops of more than 300 gallons. This compares with Socony-Vacuum's flat posted price of 12.5 cents in Westchester County. Most of the independent distributors in the area have followed the Robison change since it was announced.

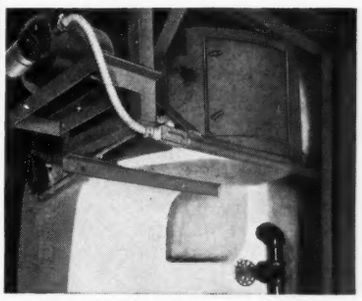
H. M. Spade, manager of Robison, has explained that the increase for small drops has been made necessary by increasing costs. Further, it has been the policy of the company to encourage larger storage, and now for the first time there is some tangible reason for the customer to spend his money for a tank larger than 275 gallons. In a statement explaining the new differentials to customers, Mr. Spade said it was more expensive to make small deliveries in two ways; the additional cost of trucking for frequent deliveries, and the additional storage that is necessary to store the customers' oil at the bulk plant.

Sentinel Oil Co., New Rochelle, and Town & Country Oil Corp., Mt. Vernon, deliver oil in the Bronx as well as in Westchester, and both have announced that the new price brackets will apply to their deliveries in the city as well as in Westchester.



Wing Draft Inducers at the Famous "Tavern-on-the-Green"





One of New York's many unique hostelries is the famous "Tavern-on-the-Green" in Central Park, to which celebrities from every part of the world eventually gravitate.

In keeping with the rural setting of this modern "tavern", it is obvious that no unsightly tall chimney should rear its ugly head above the low-lying eaves of this building.

Yet a modern restaurant needs ample boiler capacity and boilers need draft, and in former days draft meant high chimneys.

But not today—Wing Draft Inducers in the "Tavern's" boiler room, installed in the breeching, give adequate draft, and insure even, efficient, economical combustion, regardless of variations in the weather.

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New London Terminal Corp. Opens First Storage Facilities

HERALDING the use of New London Harbor as an increasingly vital distribution center, the first units of the new public terminal of the New London Terminal Corp., were opened in November. Situated on a deep-water location in Groton, Conn., across the Thames River from New London, facilities are available for efficient and rapid handling of shipments from all types of tankers and the loading of barges and trucks. Tank car transfer facilities also are to be constructed.

Grover V. Lassen, president, Ballard Oil Co., Hartford, and the terminal corporation, first planned the project and Roy M. Henwood Associates designed the plant and supervised its construction. Building started in the fall of 1947 and the first units were completed almost exactly a year later. Construction of the entire project is scheduled for completion by the fall of 1949.

The three storage units now being used have capacities of 150,000, 96,000 and 20,000 barrels of product, the first believed to be the largest petroleum storage tank yet built in eastern Connecticut. A pipe trestle extends 1,000 feet to a pier head in the harbor where there is sufficient deep water to accommodate the biggest tankers.

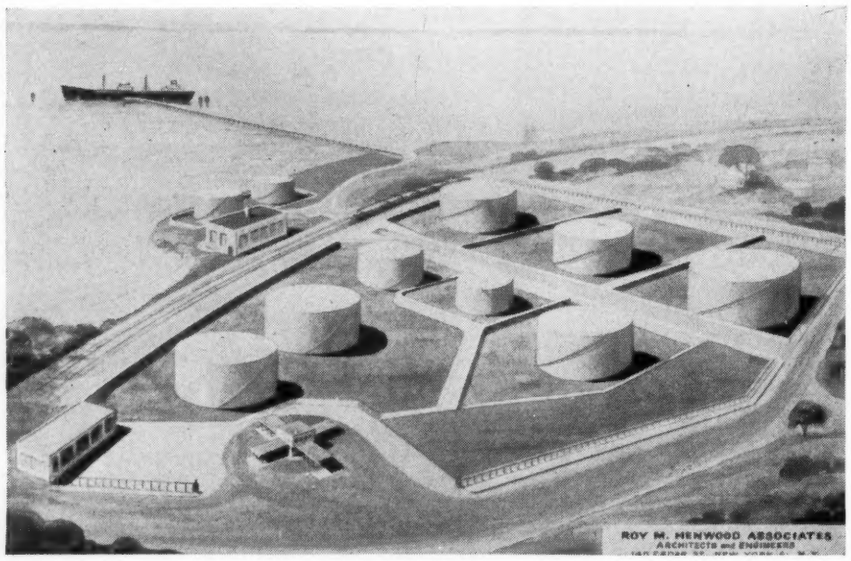
Socony-Vacuum Oil Co. is the first lessee of storage at the terminal, using the two larger tanks. Socony "Saucon" and "Mobilube" were the first ships to bring in cargoes, each carrying 120,000 barrels of No. 2 oil. As an indication of the high speed with which the terminal will handle shipments, the "Mobilube" was unloaded in twelve hours.

From the dock, one 10″ and two 12″ lines carry product to a manifold, where it is directed to storage through a system of 12″, 10″ and 8″ pipes. Mr. Lassen states that its expected unloading time soon will be even faster than it is now. In addition, the new terminal provides quick loading of barges. High-speed centrifugal pumps handle product, and most of the storage tanks occupy an elevated level to accelerate the movement by gravity flow.

Trucks for the time being are serviced by temporary spills, but a modern rotary loading system is under construction. Other units to be completed include a tank car siding to accommodate 6 cars at one time, a steam plant and seven additional storage tanks. Three of these will be of 96,000, two of 70,000 and two of 30,000 barrels capacity, so that when the entire terminal is completed total storage in excess of 30 million gallons will be available.

The terminal corporation contemplates handling all grades of heating oils, kerosene, Diesel fuel and gasoline. Its distribution radius will extend through most of Connecticut, all of Rhode Island, a large portion of southern Massachusetts and the eastern portion of Long Island, N. Y.

New London harbor, less publicized than many others, long has been a strategic shipping port. During the Revolutionary War the British considered it important enough to attack and burn the city. The Navy has an important submarine base in New London harbor and the United States Coast Guard Academy is located there. The harbor's natural construction, with its wide and deep mouth and lack of torturous channels, facilitates greatly the handling of water borne petroleum shipments. Coupled with the long trestle, constructed by the New London Terminal Corp., the biggest and smallest tankers will be enabled to come directly to dockside and unload without delay.



Aerial *view of public petroleum terminal of the New London Terminal Corp. as it will appear when completed. The terminal now has storage for ten and a half million gallons of product and construction is proceeding on a total of ten tanks with capacity for more than thirty million gallons. Located on the Thames River at Groton, Conn., the terminal affords dockage for the largest ocean-going tankers, plus high speed unloading and dispensing facilities.*

Study Sees Oil Demand Higher, Prices Firm

A STUDY of the petroleum industry with a view to investment opportunities has been made by the investment firm of Calvin Bullock and has been issued under the title, "Petroleum—A Reappraisal." It concludes that demand for oil products "will undoubtedly be higher in 1949 and the basic statistical position will be one of relative tightness and not over-supply."

"In the light of these conditions, common equities of leading oil companies appear to possess attractive investment characteristics at present market levels," the survey, contained in the firm's monthly publication "Perspective," stated.

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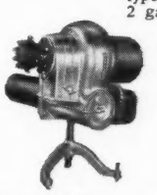


Type 450 Conversion Burner — Pressure-atomizing type. Nozzle cap. from 1 to 5 gal. per hour.

Type 460 Conversion Burner — Highly efficient pressure-atomizing type. Nozzle cap. from 1 to 2 gal. per hour.

Year 'Round Air Conditioning

Type 901 Summer Air Conditioner — For installation with Type 202 Oil-fired Winter Air Conditioners. By-pass damper. Sizes: 3 and 5 tons.

Ⓜ

With this complete line, there's no question about the *right* answer to any heating problem

— and no question that you can count on a profitable volume of oil-heating business

Here are four important sales advantages that will help you get a bigger share of the profitable oil-heating business in your territory:

- 92 years of specialized experience building quality products. Years of national advertising in leading magazines have established the Mueller Climatrol name.
- Up-to-the-minute engineering gives your customer the most advanced new heating developments. (See *Modular Design* described below.)
- The complete Mueller Climatrol line gives you a unit you *know* is right for any job, specifically designed for efficiency with oil.
- Modular design permits adequate inventory with low investment.

Cash in on these sales-building features . . . push your advantages as a Mueller Climatrol dealer. It really pays. Write for complete, up-to-date information....*L. J. Mueller Furnace Co., 2009 W. Oklahoma Ave., Milwaukee 4, Wis.*

Ⓜ Modular Design...

All units indicated by Ⓜ are Modular Furnaces — Mueller's great new heating development. Each is composed of combinations from a basic group of standardized, interchangeable units.

Thus, you can install any modular equipment (up to the complete year 'round air-conditioner) all at once or a step at a time to fit your customers' needs and budgets. You can change from one fuel to another by switching modular units. You can expand the initial installation by adding modular units. At each stage, your customer enjoys the efficiency of a completely engineered heating system! Write for complete details on this great new step in home-planning. It's a real sales-builder!

See our Exhibit
Booth 1037-1039-1043
9th International Heating & Ventilating Exposition

F-42

MUELLER Climatrol
REG. U.S. PAT. OFF.

FOR GAS | FOR OIL | FOR COAL

have removed the threat of a shortage of crude, but the enlarged production does not appear of sufficient magnitude in relation to present consumption levels to carry a threat of overproduction and a consequent substantial drop in the price structure, according to the study. It "is unlikely that any serious weakness will develop in the price structure," the analysis continued, not only because demand will be at a higher level next year than in 1948 but because "exploration and development must continue at high levels to develop requisite reserves," which "will of course require satisfactory prices." Domestic reserves must still be built up substantially in order to provide a desirable margin of safety, the firm declared.

Asks Better Margins For Fueloil Distributors

MARGINS on which fueloil distributors are presently working should be increased 50% to 60% in the Chicago area, according to a statement released recently by Carl Jonswold, president of the Burning Oil Distributors Association, Chicago. "Margins must be adjusted to conditions as they are, and recognition must be given to the marketing problems and costs of the area served," said Mr. Jonswold. "The margin requirements of Chicago may be higher than other areas. Prewar margins for light fuels were from 2¢ to 2½¢ per gallon based on the 400 gallon delivery bracket. These margins should be increased a minimum of 50%-60%.

"For the past two years," Mr. Jonswold points out, "the fueloil dealers of Chicago have satisfied their margin requirements by posting prices over those of the major oil companies. The scarcity of petroleum products permitted this because even if the customer objected, he was unable to purchase his requirements from a major oil company. The prices posted by the independents were for the most part reasonable because they were required to pay high prices for products and high transportation costs as they sought to find products, regardless of cost, to meet the demand. If the independent distributor had not had the courage to do this, the demand for fueloil in this area would not have been met. Millions of gallons were brought into this area at a cost to the distributor approximating or substantially higher than the posted retail tank wagon price of the major oil companies.

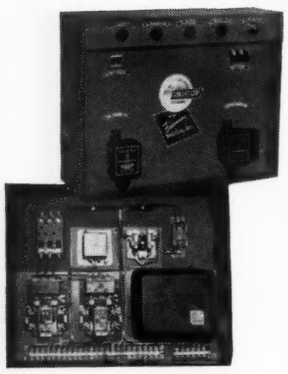
"Now that the fueloil supply situation has eased so that products are readily available and the major oil companies are taking new business, it will not be possible for the independent distributor to continue to sell at prices over those of its major oil company competitors.

"The fueloil business has been pioneered by the independent distributor and the independents serve most of the market. All the major oil companies marketing fueloil in this area under their own name and including subsidiaries which they own or control probably do not deliver any more fueloil than the two largest fueloil distributors in the area or at the most the three largest. It hardly seems logical or in the public interest that the pricing control should be determined by this small representation to the detriment of the distributor who has no other source of income.

"It is more illogical when you realize

The Perfect Oil-Burning Equipment Combination

ACE PANEL BOARD

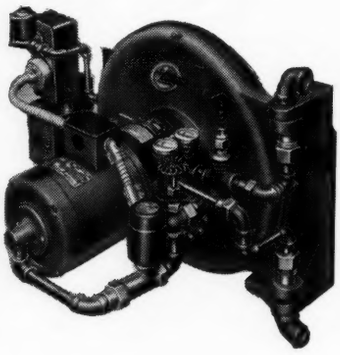


The new all-steel Ace control panel permits rapid and efficient installation of oil burners.

It is pre-wired at the factory so that it is only necessary to supply the power and make connections on location. Wires are color-coded for ease in circuit tracing. Pilot lights indicate if burner is operating as desired.

The prefabricated panel has a number of other features that make it outstanding.

ACE Uniflow OIL BURNER



Ace burners are custom made for particular heating requirements, assuring dependable, economical, efficient applications in the commercial and industrial field.

The patented Ace Uniflow Valve permits a constant, uniform flow and flame regardless of changes in oil temperature or viscosity. The correct proportioning never varies.

SEE THEM AT THE SHOW...

See these units and other Ace equipment at Booth 321, Heating and Ventilating Exposition. Special manual available for architects and engineers.

Ace UNIFLOW OIL BURNERS

Capacity Ranges

	Gallons Per Hour	Boiler H.P.	Square Feet Steam Rad.	Square Feet Water Rad.
Minimum	4	12	1,600	2,600
Maximum	165	500	64,000	104,000

ACE ENGINEERING CO.

1435 W. 15th Street • Chicago, Illinois

Custom Engineered Oil Burning Systems Since 1931

There is only ONE

Draft-O-Stat

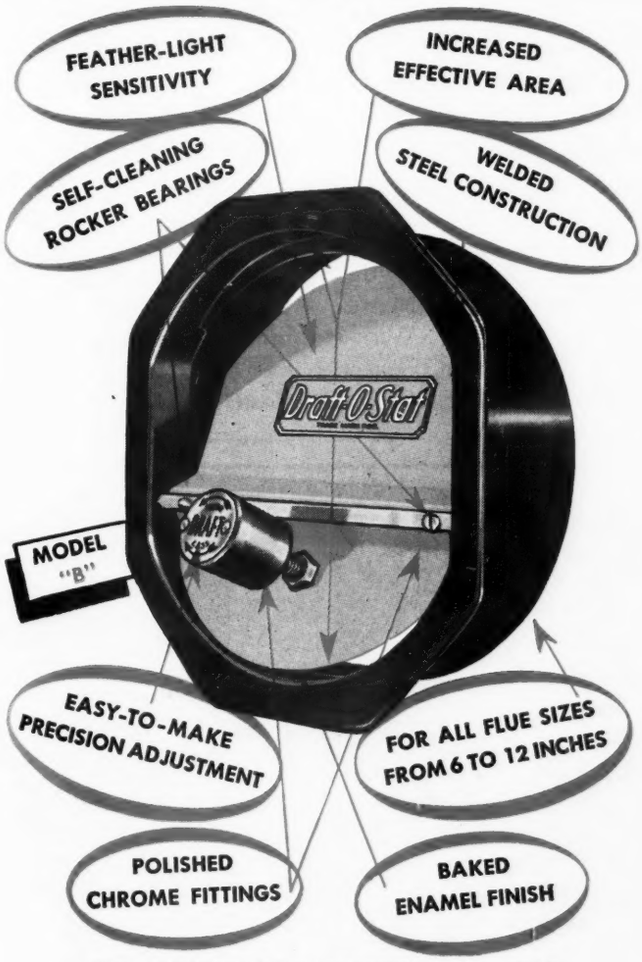
Trade Mark Registered

BAROMETRIC DRAFT CONTROL

—and HOTSTREAM makes it!

Draft-O-Stat has for many years been the standard barometric draft control mechanism for boilers, furnaces, oil burners and stokers. Hundreds of thousands of successful installations on domestic, commercial and industrial heating equipment have established its leadership in the field.

The Model "B" Draft-O-Stat with all-steel construction has been designed for greatest efficiency. It insures a steady, unchanging rate of draft in the chimney, providing maximum utilization of furnace heat. Top performance and long life is insured by the features shown below.



Model "A" Draft-O-Stat (original design) available in domestic sizes 14" to 20"; commercial sizes 16", 18", 20" and 24"; industrial sizes 24", 30" and 36".

INSIST ON **Draft-O-Stat** FOR BEST RESULTS ON EVERY HEATING INSTALLATION

The HOTSTREAM *Heater Co.*

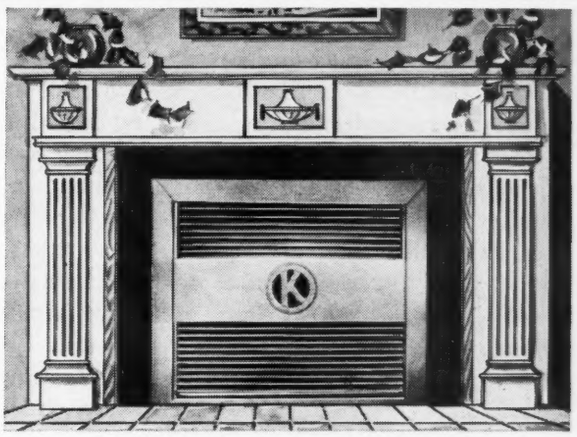
2363 EAST 69th STREET • CLEVELAND, OHIO

Manufacturers of water heaters and draft controls

YOUR NEW

Market Place IS THE FIREPLACE

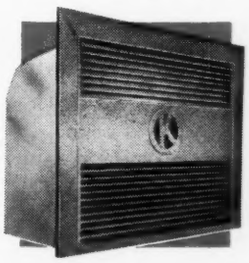
with the KRESKY OIL FIREPLACE FURNACE



YOU'LL MAKE MANY new warm friends and customers when you sell them the newest development of Kresky engineering...the Kresky Oil Fireplace Furnace. All the romantic warmth of a fireplace is preserved plus the more practical warmth of dependable, clean, Kresky Automatic Oil Heat.

The Kresky Oil Fireplace Furnace offers you a way to solve your customers problems of more heat, elimination of the expense of wood or coal, and the bother of handling fuel and ashes, and dangers of an open flame.

Made in two sizes to fit any fireplace, installed in minutes, the Kresky Fireplace Furnace is available with an output of 40,000 BTU per hour or 60,000 BTU per hour.



FAMOUS KRESKY FEATURES

All the famous Kresky features are engineered into the Kresky Fireplace Furnace, including a circulating fan, the famous Kresky Economizer which extracts heat from the flue gases, plus, of course, the famous patented Kresky Forced Air Induction Oil Burner which gives dependable, clean heat with maximum economy, and regardless of natural draft conditions.

For more information of this great new money maker for you, as well as for information on the Kresky line of air conditioning oil furnaces, floor furnaces, water heaters, all equipped with the famous patented Kresky Forced Air Induction Oil Burner, write to Kresky.

Kresky OIL BURNERS

KRESKY MFG. CO., INC.

100 H STREET,

PETALUMA • CALIFORNIA

The Best Known Name in Oil Heating Since 1910

from the study of financial statements of the large companies that their marketing operations as typified by their fueloil operation could at best have contributed an infinitesimal part of their profits per gallon sold. Gross operating income of major oil companies were up 35-50% on the average in 1947 and recently published statements show sharp increases for 1948. We have no quarrel with the incomes these companies have earned nor for the need of these incomes. We believe they were earned in the public interest so that the oil demand could be met, but the independent distributor has the same increased costs and his dollar buys no more in the acquisition of capital items, either for replacement or expansion, than the major oil companies. And, it should be kept in mind that if the large oil companies have problems in raising funds to expand their business, these problems are multiplied for the small distributor who can secure no term loans from banks or insurance companies.

"The oil industry has united in telling its story to the public under the public relations program of the American Petroleum Institute. Much stress has been placed on the fact that the American public is served not by a few large oil companies but by thousands of small distributors and dealers. This is a worthy effort, but it will lose its value if the inequities existing within the industry are not eliminated."

◈

G-E Man Sees Swing To Coal For Power Essential

RATIOS OF ENERGY generated at present by oil and natural gas are too high and a swing back to coal as a basic fuel is essential, according to T. R. Rhea, of the General Electric Company. He has predicted that sythetics ultimately will replace natural oil, and coal would replace oil and natural gas as the chief source of energy.

This swing, Mr. Rhea said, would be "very gradual" and might extend over several decades. The prediction was made in the face of the fact that today more heat is generated by petroleum products than from coal. He said such a trend "cannot continue because the United States does not have unlimited petroleum reserves. A gradual swing back to coal-based power means that more of this power will be transmitted as electric power, and this will be extremely important to the electrical industry." The steadily increasing value of petroleum products will force major industries back to coal as the chief source of heat energy.

"To conserve existing oil stocks," he said, "petroleum, natural gas and synthetic liquid fuel must be diverted from many industrial uses and conserved for use in automobiles, planes, diesel-electric locomotives, ships, and special industrial heating processes."

Mr. Rhea said that while additions to proved oil reserves in the United States are still increasing, they are not increasing as fast as consumption.

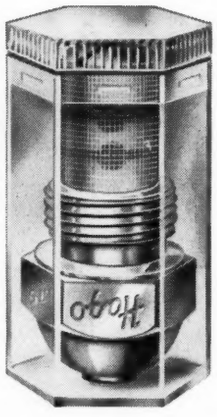
◈

John H. Reock has become assistant to the general sales manager, L. J. Mueller Furnace Co., Milwaukee 7, Wis. He formerly was assistant sales promotion manager, Iron Fireman Mfg. Co. in Cleveland.

EXCLUSIVE!

NEW! SNAPON LIDS! EASY TO STACK!

Hago



DUSTPROOF! CLEARSITE PLASTIC! HEXAGON SHAPED!

A SUPERIOR CONTAINER FOR A SUPERIOR NOZZLE

HAGO PRODUCTS • 1281 Springfield Ave., Irvington, N. J.

MONCRIEF'S Fine *New* Line of Heating Equipment STILL STAYS "Years Ahead" in

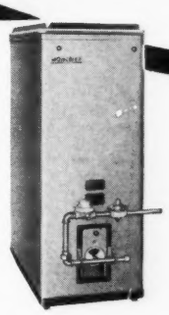
Eye appeal... Sales appeal

• Not only heating and air conditioning equipment with all the "Years Ahead" engineering and construction features—but also heating equipment that is "Years Ahead" in its distinctive, attractive, tailored look—that's MONCRIEF! It is the smartest looking, complete line of heating and air conditioning units ever offered to the heating trade.

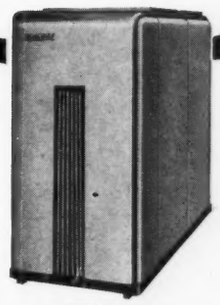
Cabinets now have graceful, rounded corners, for all models have been redesigned from end to end by one of America's leading stylists. The new design also includes advanced construction features . . . easier assembly . . . heavier gauge steel . . . beautiful finishes in smooth, easy-to-keep-clean, baked enamel. And all cabinets are made of heavier gauge steel to provide new stiffness and rigidity.

Whatever the homeowners, builders and architects whom you serve, want in the way of heating equipment—be it gravity furnaces or air conditioning units—steel or cast iron heating elements—equipment for coal, gas or oil—Moncrief's fine new line of sound, well built units, with the new look, will enable you to make the sale.

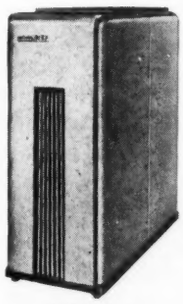
SUREFIT pipe and Fittings—the *Complete* line for Gravity or Forced Air installations. The *best* line for a streamlined, good looking and economical installation SUREFIT fittings FIT.



SERIES W
Gas-Fired, Steel, Gravity Furnace.

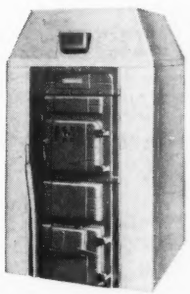


SERIES P
Gun, Oil-Fired, Steel, Air Conditioning Unit.

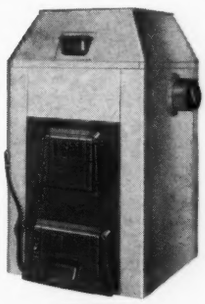


SERIES L
Gas-Fired, Steel, Air Conditioning Unit.

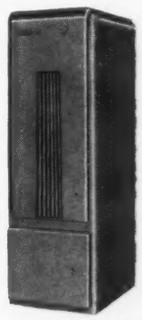
SERIES U
Gas-Fired, Steel, Utility Air Conditioning Unit.



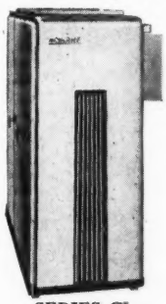
SERIES 700
Coal-Fired, Steel, Gravity Furnace.



SERIES C
Coal-Fired, Cast Iron, Gravity Furnace.

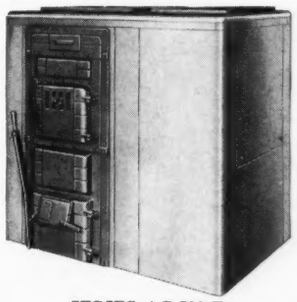


SERIES CU
Gas-Fired, Cast Iron, Utility Air Conditioning Unit.



SERIES CL
Gas-Fired, Cast Iron, Air Conditioning Unit.

SERIES V
Vaporizing, Oil-Fired, Steel Air Conditioning Unit. Also available in Utility Unit. and Gravity Furnace.



SERIES AC-700-F
Coal-Fired, Steel, Air Conditioning Unit.

INSPECT
MONCRIEF'S FINE NEW LINE of "Years Ahead" heating and air conditioning equipment at the International Heating and Ventilating Exposition in Chicago's International Amphitheatre, Spaces 1024 and 1026

THE HENRY FURNACE COMPANY

Medina, Ohio

HEATING AND AIR CONDITIONING UNITS — MONCRIEF — FURNACE PIPE AND FITTINGS

fuel oil heat

Everyday Snags

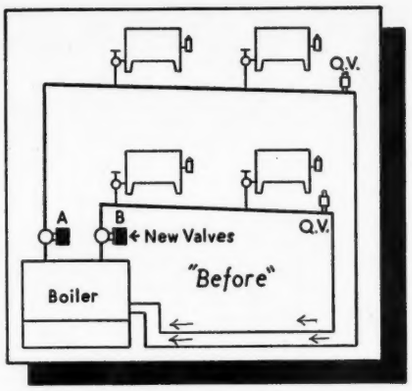
Zoned Steam Heat Trouble

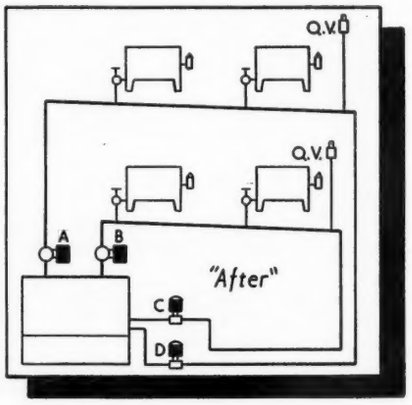
This "Before" diagram shows how an inexperienced heating contractor tried to provide two-zone heat on a one-pipe steam installation simply by installing motor-operated valves "A" and "B" in the two steam mains of the system.

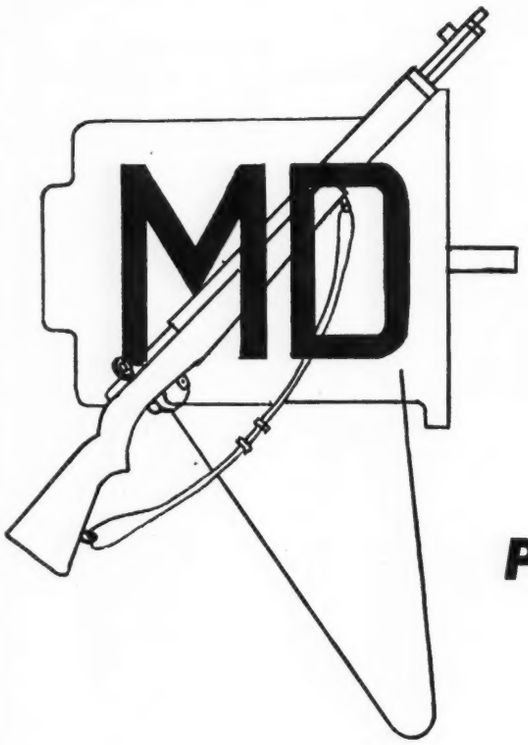
He learned speedily that when one of these valves closed while there was, say, two pounds steam pressure on the boiler, the steam pipes and radiators of the turned-off zone promptly filled with boiler water. Closing valve "B" caused the radiators of zone "B" to fill with boiler water because the boiler pressure caused the water to flow backwards through the still-open return line of this zone. The trouble first showed up as squirting of water out of the quick-vents at the ends of the steam mains, but after installing several different types of float-equipped quick-vents, the contractor decided to make a better diagnosis.

Of the several methods which could have been used to end the trouble the heating contractor caused by improper design of his zone-valve equipment, the method shown in the "After" diagram was selected by a heating expert who assisted the contractor. Instead of using check-valves which might have worked well or a condensation pump arrangement (which certainly would have ended the trobule) the expert used a motor-operated valve in each return line. Return-line valve "D" now opens and closes simultaneously with steam-main valve "A"; valves "B" and "C" work together similarly. This arrangement is new to most heating contractors, but gives a simple, positive and relatively inexpensive answer to the problem. The advantage over installing check-valves in the return lines, which would cost less of course, lies in being able to depend for years on the tight-closing of motor-operated valves "C" and "D." Where the characteristics of a system make this seem advisable, check-valves could be installed in series with the motor-operated valves. This precaution is needed for certain systems to avoid water and steam hammering and flooding of steam mains and radiators, caused by putting a zone to work by increasing the pressure simultaneously on the return line as well as the steam line.

A special steam pressure control has







MEANS OF PROTECTION

Preparedness is the best defense.

Safeguard yourself against motor failures, and burner and service costs with MD motors.

MD motors insure proper starting under all conditions with protected starting relay made for life-time starts.

MD motors are really designed for oil burners built entirely for this specific use.

MD motors shield you from ill-will, protect your investment and good name.

ELECTRIC MOTOR DEVELOPMENT COMPANY
WICKLIFFE, OHIO

ALDRICH HEAT-PAK

OIL BURNERS

MODEL SAX

Featuring
ALDRICH-BUILT
Motors and Transformers

These efficient, well-built burners give reliable high performance. Made to serve all firing requirements from 3/4 to 19 gph. SAX models have interchangeable draft tube assemblies covering 3 ranges. Various length draft tubes are available, also either flange or pedestal mountings. Aldrich-built motors have continuous service-rating and transformers are radio interference-free. Burners are ideal for conversion, replacement, or original equipment.

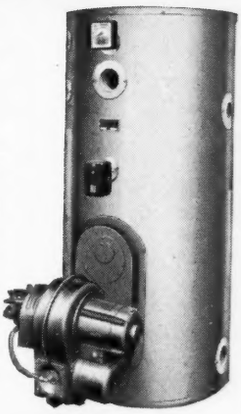
3 Models
5 Firing Ranges

Model SAX-1 (shown above) covers .75 to 1.35 gph, SAX-2 from 1.35 to 2 gph, and SAX-3 from 2 to 4.5 gph by interchange of draft tube assemblies. Model BX covers 4 to 8.50 gph and Model JU from 7 to 19 gph for larger installations.

ALDRICH HEAT-PAK

BOILER-BURNER UNITS

Featuring
BURNERS FOR OIL OR GAS
with Identical Ratings



These vertical fire-tube boilers are strongly built to highest standards of rugged welded construction. Give dependable, efficient performance on all types of steam or hot water heating systems. Six sizes cover capacities from 118,000 to 808,000 BTU per hour. Series B (shown) are oil-fired with Underwriters-approved Aldrich burners. Series BG are gas-fired with AGA-approved burners having ratings identical to corresponding oil burners. Both types of burners are on similar mounting plates for interchangeability. Efficient, high-delivery, double-spiral hot water coil available on specification. Many other outstanding features.

ALDRICH HEAT-PAK

HOT WATER SUPPLY UNITS

Featuring
FAST HEATING and LARGE DELIVERY
No Storage Tank Required

Ideal for use in residences, apartments, clubs, factories, and many commercial and industrial establishments. Same construction and features as Boiler-Burner units above, including interchangeable firing with either oil or gas. Capacities of six standard sizes range from 125 to 850 gph of water at 100 degrees rise. Complete set of automatic and safety controls furnished. Dress shell enameled beautiful Hammerloid blue with chrome trim rings. Many other features — see literature.

Write today for current literature giving complete specifications of all Aldrich products.

SOLD THROUGH JOBBERS

Aldrich products are distributed through established plumbing and heating jobbers, and are backed by an experienced sales and service organization. Investigate the value of handling the Aldrich line! Write us, so our nearest factory representative can call on you.

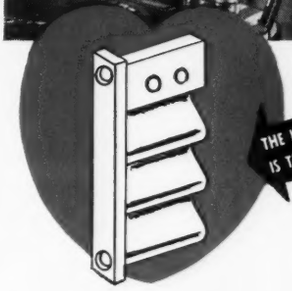
ONE OF THE BREEZE MARK PRODUCTS

ALDRICH COMPANY, 103 WILLIAMS ST., WYOMING, ILL.

A SUBSIDIARY OF THE BREEZE CORPORATIONS, INC.

Koven

WATERFILM BOILERS FOR FASTEST HEAT AT LOWEST COST!



THE HEART OF THE WATERFILM BOILER IS THE ZIG-ZAG SHAPED WATER TUBE

- Patented Construction
- Quick-Steaming
- Retards Accumulation of Soot
- Economical
- Rugged Construction
- Easily Replaced

THE FASTEST STEAMING BOILER MADE

WATERFILM and only WATERFILM has the patented zig-zag water tube—a special feature scientifically designed to produce quick heat. Just a ¾" film of water in these tubes has to steam in order to start heating any home—before the main body of water in the boiler is even warm! Explain this fast-steaming, fuel-saving principle to your customers—and point out that attractively jacketed WATERFILM BOILERS maintain even temperature in every room and supply plenty of domestic hot water at all times.

In models and sizes for small homes, apartment houses and industrial plants. For the large installations, the Sectional Boiler can be taken through a 2-ft. door.

500-17,850 E. D. R.

Write for free literature and newspaper mat service.

NATIONALLY ADVERTISED

WATERFILM BOILERS, Inc.

A Division of L. O. Koven & Bro., Inc.
154 Ogden Ave., Jersey City 7, N. J.

EVEN ROOM TEMPERATURE THROUGHOUT THE HOUSE

FOR AUTOMATIC FIRING WITH OIL, STOKER OR GAS

been installed to open valve "A" if at any time the boiler pressure reaches five pounds. Without this control, the boiler safety relief valve would open at 15 pounds steam pressure if valves "A," "B," "C," and "D" closed at the same time with the firebox red-hot following a burner "on" period of an hour or two on a severely cold morning.

* * *

Pump Gland Trouble

If you suspect that on an outside tank installation the occasional whine or whistle from a pump on a pressure burner is caused by air being drawn into the pump along its shaft (through the shaft gland), you can make certain by pouring heavy oil on the shaft with the burner running. Sucked into the pump if there it a leak at the shaft, the heavy oil will end the sound caused by air going through the pump gears.

* * *

Quieting Small Burners

Experts willing to spend an additional 30-minutes tuning and altering a burner to perform outstandingly well can wind up with exceptionally quiet operation from many of the small pressure burners by taking either of these two steps:

1. Remove the regular blower wheel from the burner and install in its place a blower wheel of the same diameter but of reduced blade width. Make certain beforehand that you will not get into complications regarding the length of the motor shaft or drive coupling, and make certain when you tune the burner that the narrower blower wheel gives sufficient air for clean combustion.

2. Replace the regular 1750 rpm motor on the burner with a "slow speed" 1125 rpm motor.

Both of these measures apply only, of course, where the burner is being fired at a gph rate considerably below its maximum rate. The steps apply to thousands of burners today, however, because usually burners able to fire up to 1.5 gph or thereabouts are being used for the very popular small homes which need firing rates up to 1.0 gph.

* * *

Leaking Air Dampers

To obtain high-enough CO_2 readings with unusually low firing rates, the air dampers of many models of pressure burners must be closed more tightly than the burner manufacturers intend. With the dampers closed as tightly as possible, certain small pressure burners feed their flames so much air that it is impossble to obtain, at .75 gph for example, CO_2 readings as high as 8%. Required to produce higher CO_2 readings, a wise service man simply uses pieces of metal, held in place in a workmanship manner, to reduce the air-flow through the dampers.

Complained to that their burners' air dampers cannot be closed tightly enough, burner manufacturers usually reply that the authorities interested in safety do not countenance dampers of tight-close or nearly tight-close design; with its air damper moved by accident to the position which gives minimum air-flow, a burner is not supposed to misbehave violently, even when firing at its maximum rate. Building burners in a way which makes field changes to the air dampers necessary is not good, according to several manufacturers, but appears necessary at the present time.

Put easy handling "Newtype" on your trucks now. Contact our nearest branch for details and prices.

GOODALL "NEWTYPE" FUEL OIL HOSE

Pays Dividends Through Lower Delivery and Replacement Costs

Light-weight, flexible, kinkproof construction makes "New-type" the easiest hose to carry off the reel, especially on the longest hauls; and it's just as easy to reel up again. A tough, brown cover offers longer resistance to severe abrasive wear. Retention of rated inside diameter assures a full, fast flow from truck to nozzle—another contribution to low delivery costs.

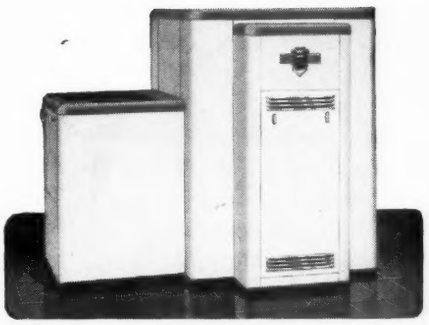
GOODALL RUBBER COMPANY

GENERAL OFFICES, MILLS and EXPORT DIVISION, TRENTON, N. J.

Branches: Philadelphia • New York • Boston • Pittsburgh • Chicago • St. Paul • Los Angeles
San Francisco • Seattle • Salt Lake City • Houston • Distributors in Other Principal Cities

Est. 1870

What Do You Want in the Heating Line You Handle ?

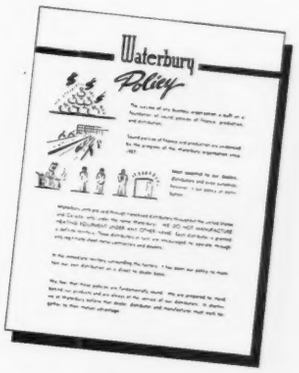


A Complete Line—Nationally Known and Accepted. Coal, oil or gas fired units—gravity or forced air—the right size for every home from the smallest to the largest. Nationally advertised—with established consumer acceptance.

Waterbury Has It!

A Sound Dealer Policy

A clearly stated policy toward distributors and dealers that is strictly carried out is essential as a foundation for a lasting and profitable relationship. It should be in print and available to every dealer and distributor.

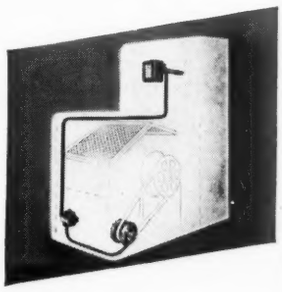


Waterbury Has It!

Factory Interest In Every Unit

Every distributor should have resources available to every dealer that will insure satisfactory installation and operation of every unit. The factory should have the means to give real support to this program.

Waterbury Has It!



The Answer to Drafts and "Cold 70" Waterbury Has It!

THE MASTER BLOWERTROL

We are convinced that this is the best means of achieving true continuous blower operation —it means more satisfied customers—the end of stratification and "Cold 70". Combined with precision-engineered Waterbury Air Conditioners, it is Modern Perfection in warm-air heating.

"IT'S WHAT'S UNDER THE CASING THAT COUNTS!" and

Waterbury Has It!

THE WATERMAN-WATERBURY COMPANY

1171 Jackson St. N. E., Minneapolis, Minn.

Manufacturers Activities

Webster Electric Meetings Describe Thermodrive

A SERIES OF MEETINGS held recently throughout the East by Webster Electric Co., Racine, Wis., was part of its dealer education program on Thermodrive, variable speed regulator for forced warm air furnaces. Nearly 100 dealers from metropolitan Boston and eastern Massachusetts attended the Boston meeting, followed by similar gatherings at Hartford, Newark, Philadelphia, Buffalo and Syracuse. The eastern meetings were preceded earlier in the fall by meetings in Detroit, Milwaukee and St. Louis. The series is being continued in other parts of the country.

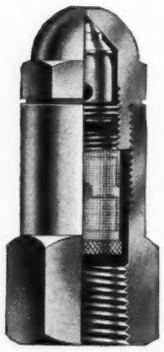
Program for the meetings featured a presentation of the new Thermodrive kit for conversion of furnaces to controlled air circulation. Picture slides and actual demonstrations were used to explain the operation of the pulley, controlled by a sample of warm air continuously drawn from the plenum chamber to regulate blower speed in ratio to heat output.

B. T. Weichers, assistant sales manager of Webster, conducted the meetings. Other Webster representatives in attendance were H. B. Hastings, Jr., eastern sales representative and L. S. Ehrich, Jr., national service manager. The meetings were scheduled in cooperation with Webster Electric authorized service stations serving the areas.

USE THESE TWIN PROTECTORS AND DOUBLE CUSTOMER SATISFACTION

EDCO FUEL OIL FILTER

EDCO Triple-Tested NOZZLE



Much of the oil burner inefficiency and trouble today results from the nozzle becoming clogged. Oil needs thorough filtering BEFORE it reaches the nozzle, especially when the burner is handling 1½ gallons or less per hour.

The newly designed EDCO Filter S-252 has such a large filter area it is ideal protection for oil burners, space heaters and water heaters using No. 1, 2 or 3 fuel oils. And as an added protection, the EDCO Nozzle has a large capacity Monel strainer to protect the orifice and slots from plugging.

The combination of EDCO Filter and Nozzle gives the protection customers need for a smooth running oil-burner—the protection YOU need for complete customer satisfaction.

STOCK UP TODAY on both the EDCO Filter and the EDCO Nozzle.

Filters are individually boxed 24 and 48 to a case. Nozzles too are packed for safety. Please give complete information about capacity, spray angle, quantity, etc.

EDCO

EDDINGTON METAL SPECIALTY CO.

P. O. BOX K, EDDINGTON, PENNA.

Luty Oil Furnace Selected To Heat Detroit Ideal Home

THE IDEAL HOME, constructed and exhibited by the Detroit Builders Association in conjunction with its annual Builders Show, will be heated by a Luty oil furnace. The unit is being installed in the ranch-style house of attractive Cape Cod lines, by T. H. Brehm Co. A product of Peerless Air Conditioning Co., Inc., Detroit 20, Mich., the unit consists of a heat exchanger, firing mechanism, power unit, air circulator, filters, humidifier, automatic controls and casing, completely assembled and wired at the factory.

The 1949 Builders Show is scheduled to open in Detroit's Convention Hall on February 11 and will continue through February 20.

Peterson Licensed By Rex Clay Products

LICENSING of B. A. Peterson Co., Dowagiac, Mich., to manufacture and sell Rex Roto combustion chambers under Rex Clay patents and secret formulae, has been announced by John P. Rex, president, Rex Clay Products Co., Detroit 6, Mich.

Mr. Peterson formerly was associated with Rex Clay during the early development and commercial production of Rex Roto combustion chambers.

White-Rodgers Establishes New Field Service Plan

ESTABLISHMENT of a nation-wide system of Exchange Agencies has been announced by White-Rodgers Electric Co., St. Louis 6, Mo. The agencies are authorized to furnish repair and replacement service on White-Rodgers controls and also will act as a source of in-

"SCOTTY FIELD"

SUPER SALESMAN

FUEL ECONOMY STORY SELLS FIELD DRAFT CONTROLS FAST

DEALERS: For fast sales display your Field Barometric Draft Controls prominently. Their dramatic FUEL SAVING story makes them best-sellers, self-sellers!

A Field Barometric Draft Control improves the performance of any heating plant—provides for lower fuel consumption, increased safety, longer plant life. That's why dealers find it profitable and easy to sell the efficient, durable Field Barometric Draft Control. Write today for complete information on the Field Barometric Draft Control line.

On The Finest Heating Equipment Field Controls The Draft.

See our exhibit at the 9th International Heating and Ventilating Exposition, International Amphitheatre, Chicago, Jan. 24th to 28th. Exhibit No. 1221.

FIELD BAROMETRIC DRAFT CONTROLS

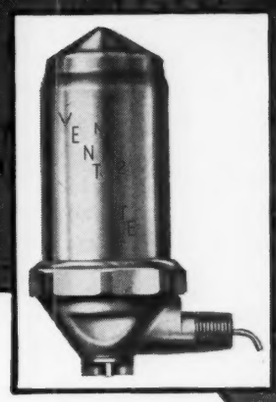
FIELD CONTROL DIVISION
H. D. CONKEY & COMPANY MENDOTA, ILLINOIS

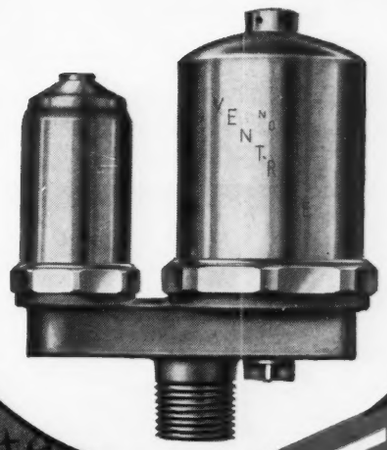
AFFILIATES: CONCO MATERIALS HANDLING DIVISION — CRANES—HOISTS

field REGISTERED

AFFILIATES: CONCO BUILDING PRODUCTS, INC. — BRICK—TILE—STONE

BAROMETRIC DRAFT CONTROLS





VENT-RITE

BETTER Venting Valves

YOUR customers save fuel, and get uniform comfortable heating when you install the Vent-Vac system in their homes.

Vent-Vac, engineered by Vent-Rite, makes use of the latent heat after the boiler has ceased firing, automatically shifting from vacuum to non-vacuum operation for maximum efficiency.

You make a good profit when you install Vent-Vac System Valves (illustrated), as well as cutting service troubles and getting more satisfied customers. Try Vent-Rites on your next job. Write for details.

Anderson Products, Incorporated
Cambridge 39, Massachusetts

fuel oil & oil heat

formation on controls and control systems.

The new system has been set up to afford dealers and servicemen a local source of information and immediate replacement service on damaged or inoperative controls. Each agency will stock control parts and sub-assemblies needed in field service.

Progressive Assembly With Mueller Modular Furnace

THE MODULAR FURNACE, announced recently by L. J. Mueller Furnace Co., Milwaukee 7, Wis., permits home-owners to assemble progressively a fully automatic winter air conditioning furnace and summer cooling unit. This home planning innovation is Mueller's effort to tie in with the national Modular Coordination program for standardizing construction units. Announcement of the program explains that the Module is a basic measuring unit for a multiplicity of parts that can be laid along side and/or on top of other modules in designing or building complete structures.

The basis for the Mueller Climatrol Modular furnace is standardization and interchangeability of standard parts, permitting purchase of a gravity furnace, expanding into automatically fired winter air conditioning and finally adding a summer cooling unit, without discarding any original equipment. If desired, the entire assembly can be purchased as a complete package.

Hartford Distributor Opens Modern Establishment

ON DECEMBER 17, Northern Heating Supplies, Inc., West Hartford, Conn., held its formal opening of the company's new offices and showrooms. More than 300 dealers and service men were welcomed by Harold A. Stockberger, general manager; William C. Lathrop, sales manager and Joseph R. Howard, sales engineer. Also present were factory and manufacturers' representatives from companies represented by Northern Heating.

The firm distributes products of York-Heat, Bell & Gossett, Minneapolis-Honeywell, Modine, Tuttle & Bailey, Skuttle, General Fittings, Rochester Mfg., Lewin & Mathies and Rheem.

Petro Names Wentworth Manager of Branches

A NEW POST, manager of branches, created by Petroleum Heat & Power Co., Stamford, Conn., has been filled by Roland L. Wentworth. He had been manager of the Boston branch since 1945 and has been succeeded in that position by Fritz F. Nelson. Mr. Nelson formerly had been industrial sales manager at Boston.

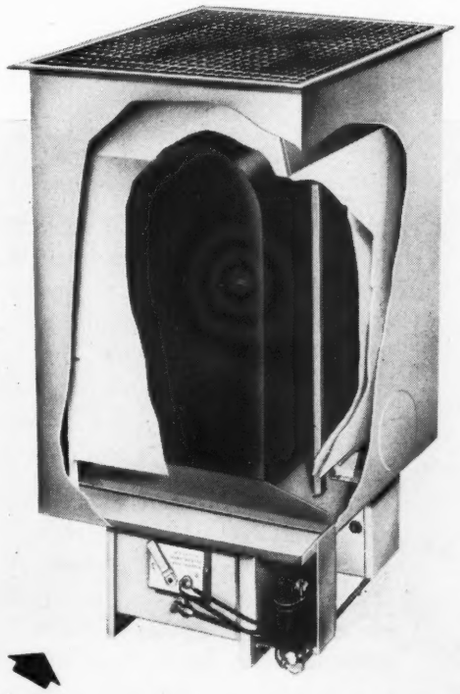
Mr. Wentworth joined Petro in 1933, after experience with other companies where he acquired a broad knowledge of business management. Mr. Nelson is a member of Petro's 20-year group, having started with the company in 1919 as a draftsman. He joined the sales department in 1932.

Jack & Heintz Sells Berea Road Factory

A CONTRACT has been concluded between White Sewing Machine Corp. and Jack & Heintz Precision Industries, Inc., Cleveland 1, Ohio for the sale of the J & H Berea Road Plant. The plant, comprising approximately 250,000 sq. ft. of floor space, will continue to be used

H.C. LITTLE-THE ONLY OIL FLOOR FURNACE THAT AUTOMATICALLY LIGHTS ITSELF!

A joy in any home- provides carefree comfort without attention-at low cost. An exclusive, patented principle- no pilot light to waste oil!



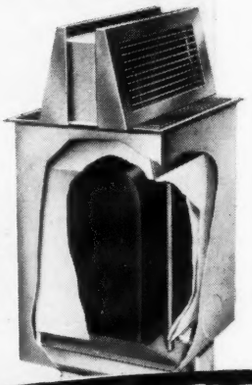
"We're buying the H. C. Little oil floor furnace that LIGHTS ITSELF. None of the other oil floor furnaces we looked at had this feature, and in the end it was the deciding factor." So, another family settles down to a life of carefree comfort, and another oil heating dealer has made an easy sale—and a nice profit!

DO THIS—The next time you have a heating equipment prospect, talk up the H. C. Little oil floor furnace that automatically LIGHTS ITSELF. You'll be amazed at the magic sales appeal of this exclusive H. C. Little feature. You'll be surprised to see how it melts consumer sales resistance.

P.S. Another BIG sales feature — the exclusive H. C. Little Catalytic Heat Control is now standard equipment on all units, for greatly improved performance with low cost catalytic furnace oil.

Many home owners say, "the finest, low cost heating unit available for small homes—automatic self lighting gives heavenly comfort."

Dual registers are available for installation under a partition.

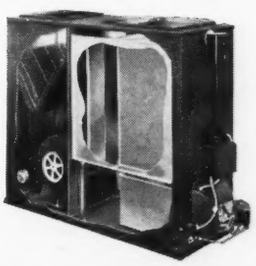


FACTORY REPRESENTATIVES IN 18 PRINCIPAL CITIES
For full information, write for literature No. 1

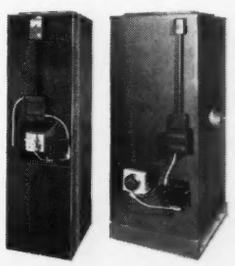
H.C. Little Burner Company
SAN RAFAEL, CALIFORNIA

OTHER H.C. LITTLE UNITS THAT FEATURE Automatic SELF LIGHTING

WALL FURNACE—Registers on both sides of the partition. 42,000 BTU. Output.



WINTER AIR CONDITIONERS—Size A, Type AC-2, 84,000 BTU. Output; Size B, Type AC, 125,000 BTU. Output.



FORCED AIR UNITS FOR FIRST FLOOR—Type A-UC, 84,000 BTU. Output; Type DU-46, C.I.B.L. 120,000 BTU. Output.

by Jack & Heintz for production since the White company will not take possession for some time. The reason for selling the plant was given as a desire to centralize all activities at the Maple Heights and Bedford plant locations.

Wayne BO-80 Furnace Unit Jackpot Prize on Quiz Show

MODEL BO-80 oilfired winter air conditioning units, made by Wayne Home Equipment Co., Fort Wayne 4, Ind., are offered as weekly major and jackpot prizes on the "Take a Number" radio show, heard every Saturday at 5:00 P.M. on 500 MBS stations. Bob Shepard presides as emcee of the program, sponsored by the U. S. Tobacco Co., and broadcast from the stage of New York's Guild Theatre.

Southeastern Distributor Named By Sampsel Controls

APPOINTMENT of Heating Equipment Co., Atlanta, Ga., as sales representative for Sampsel Time Control, Inc., Spring Valley, Ill., has been announced. The outlet will cover the states of Georgia, Florida, Alabama and central and eastern Tennessee, and will handle the complete line of Sampsel automatic controls for all fuels.

W. Ralph Morgan, head of Heating Equipment Co., is widely-known in the heating and ventilating field, with approximately twenty-two years experience. His background includes work in product design, research and development, manufacturing and sales to jobbers, dealers and consumers.

KEEP HOME FIRES BURNING BRIGHTER!

with "NO-SLUDGE" Fuel Oil Treatment

Impaired combustion, congested fuel lines, and a low output of heat, can usually be traced to an accumulation of sludge in the fuel tank. Sludge forms on the premises and is beyond the control of the refiner. Unless proper steps are taken to disintegrate the layer of sludge—and to prevent it from forming, there will be thousands of heat units lost per every gallon of oil used.

"NO-SLUDGE" Fuel Oil Treatment chemically emulsifies any sludge in the tank. Its continued use prevents new sludge formation. "NO-SLUDGE" puts sludge in suspension—makes it burn with the oil. It clears fuel lines, makes oil flow freely—increases the number of B.T.U.'s, prevents breakdowns and holds service-repair work to a minimum.

Servicing the home owner with "NO-SLUDGE" is profitable. One QUART of "NO-SLUDGE" treats 2000 gallons of oil.

Qualified Distributors Wanted
Write to Department F

Dominion CHEMICAL CO., Inc.
WATER CONSULTANTS AND CHEMISTS FOR INDUSTRIAL AMERICA
11 WEST 42nd ST. · NEW YORK 18, N. Y.

New Yorker Boiler Co. Moves to Colmar, Pa.

ON JANUARY 1 the New Yorker Steel Boiler Co., Inc., moved its entire office to Colmar, Pa. The firm produces domestic heating boilers and is the successor to Titusville Sales Co., Inc.

Field Control Offers New Display Stand

A THREE-COLOR die-cut display stand, designed to hold a Field Safety control, now is available to dealers from Field Control Division, H. D. Conkey Co., Mendota, Ill. The point of sale display is distributed to dealers through jobbers, free with every order for one dozen controls.

Standing 15" high and measuring 10" wide, the stand illustrates the compactness of the control which automatically closes a furnace's damper when excessive temperatures are encountered in handfired installations. Field currently is publicizing this product as good insurance against fires caused by overheated boilers and furnaces.

Sixty Day Sales Contest Begun by U. S. Radiator

BRANCH MANAGERS and salesmen of United States Radiator Corporation offices throughout the country are competing for prizes in a 60-day sales contest. Purpose of the contest is to stimulate sales increases in all branches during the final two months of the organization's fiscal year and to reward outstanding performances.

Quotas for branch managers and salesmen were set on the basis of recent average sales, weighted with several variable factors. Contest winners, to be announced in March, will receive prizes ranging from hats to television-radio-

THEY LEAD IN SALES!

Fulflo FILTERS
REG. U.S. PAT. OFF.

There are more *Fulflo Filters* than any other in the basements of America. They lead in sales because they lead in performance. The improved B4 and B6 models are putting *Fulflo* further ahead than ever.

Smoothly streamlined head with single center bolt for simple and speedy servicing. Loosen only one nut to renew element at annual overhaul period.

Sturdy steel shell . . . . domed and ribbed for greater strength and Bonderized for longer life.

Straightline Inlet and Outlet for minimum pipe fitting. No rough, cored passages. Inlet and outlet smoothly machined.

The unequalled filtration efficiency of Fulflo Filters is due to their unique and exclusive genuine HONEYCOMB filter tubes which remove rust, scale, dirt and all suspended impurities down to microscopic size. Especially effective in removing gummy residues due to modern catalytic cracking processes. No other filter uses these remarkable filter elements.

Remember

when you install a *Fulflo Filter* you can completely forget all troubles due to impure oil . . .

Meet us at Booth 421
International Heating and Ventilating Exposition, International Amphitheatre, Chicago, Jan. 24 to 28.

ASK YOUR JOBBER
Commercial Filters Corporation
BOSTON 27 • MASSACHUSETTS

phonograph combinations, or their cash equivalents. Seven prizes will go to branch managers, fourteen to salesmen.

Two Sales Representatives Appointed by Fitzgibbons

ANNOUNCEMENT was made recently by Fitzgibbons Boiler Co., Inc., New York 17, N. Y., of the appointment of two new sales representatives. In Cleveland, the Thermal Products Co., 4501 Prospect Ave., will represent the company. The firm is well established, with an enviable reputation among architects and engineers.

In the Louisville, Ky., area, A. L. Eubank, has been selected as a representative. He is vice chairman of the Kentucky State Engineers Examining Board and well-known to the heating trade throughout the state.

Dongan Appoints Delavan Representative

APPOINTMENT of Delavan Engineering Co., Des Moines, Ia., as exclusive sales representative for Dongan Electric Mfg. Co., Detroit, Mich., has been announced by K. I. Clisby, Dongan's vice president in charge of sales. The Delavan organization will function in the states of Iowa, western Illinois, Minnesota, Nebraska and the Dakotas.

H. L. McNally, of the oilburner parts division of Delavan, will contact the trade for Dongan.

Matty Bernard Heads Sid Harvey of Mass.

ELECTION of M. P. Bernard to the presidency of Sid Harvey of Mass., Inc., was announced recently by Sid Harvey, president, Sid Harvey, Inc., Valley Stream, N. Y., and chairman of the board of the Associated Sid Harvey Companies. Mr. Bernard succeeds Winthrop A. Mandell, resigned to head the new Sid Harvey, Inc. Wholesale Department.

Plans announced for the Massachusetts set-up include regular delivery schedule of rebuilt pumps and controls in towns within a 50-mile radius of Boston. Mr. Bernard will move his family sometime in January to the home he has purchased in Wellesly Hills, Mass., and will retain his interest in Sid Harvey of N. J., Inc., of which he is president.

Honeywell Booklet Offers Twenty Fuel-Saving Tips

EMPLOYING the theme, "Catch Ali Baba and his 20 thieves!", a booklet available from Minneapolis-Honeywell Regulator Co., Minneapolis 8, Minn., offers twenty tips on how homeowners can save fuel. Each of the twenty thieves is pictured as a way in which heat is lost or wasted, with simple explanations accompanying each situation drawing to show how the defect can be corrected.

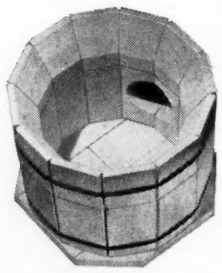
Drawings and explanations cover such conditions as lack of insulation, dirty heating systems, open windows, air leaks and similar factors. The booklet points out also how Honeywell's Chronotherm helps to save fuel by automatically turning down temperature at night and raising it in the morning.

Feature Automatic Humidifiers In Maid-O'-Mist Display

MAID-O'-MIST, INC., Chicago 41, Ill., features Auto-Vent humidifiers in a new carton display containing six units. The Auto-Vents, designed for use with steam radiators, are attached by removing the conventional valve from each radiator

They All Agree
DEALERS - ENGINEERS - OWNERS
Once they see
"THE HEART of a RADIATION FURNACE"
See the difference in performance, there's nothing like it, you'll agree. It's easy to make friends and satisfied customers through Radiation sales.
"EXCLUSIVE PATENTED HEAT EXCHANGER — Sells Radiation"

RADIATION FURNACE CORPORATION
BENTON HARBOR, MICHIGAN

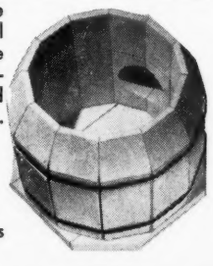


The *Instant-Glo*
CUSTOM-BUILT
INSULATING BRICK
COMBUSTION CHAMBER

The Top Quality Installation for Maximum Efficiency

INSTANT-GLO Combustion Chambers are made of special refractory insulating bricks which get hot 10 times faster than ordinary fire bricks insuring an instant red-hot refractory surface, resulting in immediate combustion efficiency—result, oil economy 15% greater than ordinary chambers. The insulating quality of the bricks also eliminates loss of heat into base of heater.

The round shape of INSTANT-GLO Chambers eliminates air pockets and produces less combustion noise than the usual fire brick chambers. Each part is taper cut like a key stone so that chamber can not fall in. The INSTANT-GLO Chamber can be installed in one hour or less. All components of each chamber carefully packed in special carton—no breakage or loss.



SIZES:
No. 1 or 1A—1.00 to 1.35 G.P.H.
No. 2 or 2A—1.5 to 1.75 G. P. H.
No. 3—2.00 G.P.H.

Model 1A and 2A (*at right*) Special chambers for steel furnace installations.

WRITE FOR COMPLETE INFORMATION
BOSTON MACHINE WORKS COMPANY
Oil Heating Supplies Division, 7-17 Willow St., Lynn, Mass.

LOW-COST FUEL HAULING
by
AUTOCAR

It costs less to haul more when you do your heavy hauling by Autocar. The White Fuel Corporation, South Boston, Massachusetts, wanting a tractor to pull a 4,500-gallon tank at low cost per gallon-mile, bought this big Model C-75-T Autocar Tractor because it was exactly the right unit to do this type of hauling with maximum economy and dependability.

AUTOCAR TRUCKS

They cost less, because they do more work

Manufactured in Ardmore, Pa.
Factory Branches and Distributors from Coast to Coast

fuel oil & oil heat

and replacing it with a model 95, Auto-Vent. Each unit vaporizes one pint of water hourly at 1 lb. steam pressure and, in addition, functions as a regular vent valve.

Also available, but shipped in individual cartons, are Ol' Faithful automatic humidifiers, for attachment to hot water radiators. Available in three sizes these units maintain a constant water line automatically by means of a float-controlled valve.

American-Standard Returns To Firm Price Policy

RETURN to a firm price policy in the sale of heating and plumbing equipment was announced recently by Theodore E. Mueller, president, American Radiator & Standard Sanitary Corp., Pittsburgh, Pa. Effective December 17, the company began accepting orders from its wholesale distributors at prices prevailing at the date of order.

Mr. Mueller explained that a purpose of the move was to enable consumers to know what heating and plumbing products would cost before undertaking building or modernization programs. Also, he continued, wholesale and retail outlets will be able to render fixed price quotations on American-Standard products. A better flow of raw materials into the company's plants at prices which are believed stable, enabled the company to adopt the policy.

Fasco Industries New Name Of F. A. Smith Mfg. Co., Inc.

A CHANGE of name to Fasco Industries, Inc., Rochester 2, New York, has been announced by the F. A. Smith Mfg. Co., Inc. The change brings the corporate name into closer conformity with the trade mark "Fasco" now being used on many of the company products. No change in corporate structure, officers, directors or policies is contemplated.

Feature Waltham Burner On Boston Television Show

IN WHAT was believed to be the first event of its kind, an oilburner under fire was televised on the November 29th "Weather or Not" program, sponsored by the First National Bank of Boston, over station WBZ-TV.

Stanley C. Paterson, proprietor of the Waltham Oil Burner Co., Boston 18, Mass., was interviewed by Dr. James Austin of Massachusetts Institute of Technology, the commentator on the program. The interview included a discussion of the Shell-designed combustion head, its principle of operation, plus a demonstration firing a Waltham burner equipped with the head.

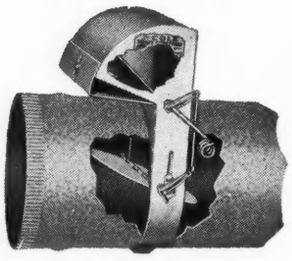
◈

Robert W. Lang was elected vice president and general manager of branches at the quarterly meeting of the board of directors, American Radiator & Standard Sanitary Corp., Pittsburgh, Pa., to succeed *Frank S. Kaulback*, retiring from active service. Mr. Kaulback has been in his present post since 1930, with American-Standard for the past forty-five years, and will continue to serve as a director and member of the corporation's executive committee. Mr. Lang joined Standard-Sanitary Mfg. Co., a predecessor company, in 1914 and since 1936 has been supervisor of the central division, American-Standard Branch House Dept. He will make his headquarters in Pittsburgh.

A MODEL TO SELL EVERY PROSPECT!

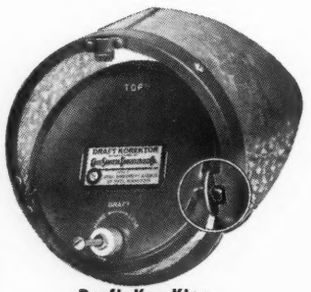
Yes—C. S. E. baromatic draft controls can be supplied in a full range of sizes.

Cole Draft Governors are made for every type and size of heating and power plants. Simple and positive in action . . . fully automatic. A proven fuel saver.



Cole Draft Governor

The popular No. 909 Draft KoreKtor is favored for its fuel-saving ability achieved by the new finger-tip adjustment and close-fitting blade. Large unrestricted opening maintains proper draft control at all times. Available in every size for domestic heating installations.



Draft KoreKtor No. 909

Meet Us At Booth No. 1013 9th. International Heating and Ventilating Exposition. Jan. 24-28. Chicago, Illinois.

COLE-SEWELL Engineering Co.

2282 University Ave. • St. Paul 4, Minn.

FOR GREATER SAFETY ... CLEARER VISIBILITY

this Gauge wears a DOUBLE dome!

• Double Dome walls of clear plastic that is shock-proof and break-proof gives Sentry At-A-Glance tank gauges distinctive advantages. This patented feature will withstand air pressure in excess of 100 lbs. per sq. inch — Condensation will not cloud or affect its easy readability — It is guaranteed leakproof — and listed as standard by Underwriters' Laboratories. Write for details today. Investigate too, Sentry Draft Controls, for more efficient stack operation.

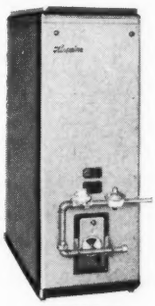
ON GUARD . . . *24 hours a day!*

KRUEGER Sentry GAUGES

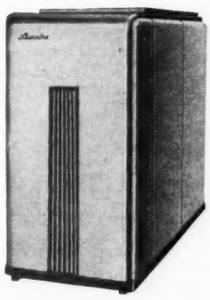
GREEN BAY • WISCONSIN

The most *Startling*... the most *Revolutionary* line of Heating Equipment ever Offered to the Heating Trade

Luxaire's NEW LINE FOR '49



SERIES G
Gas-Fired, Steel, Gravity Furnace.



SERIES O
Gun, Oil-Fired, Steel, Air Conditioning Unit.

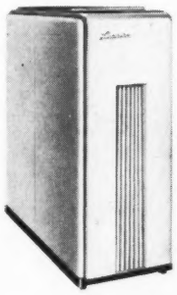
• Here's an important announcement to the warm air heating trade, at the start of the new year!

Not the announcement of just a new, outstanding model—but . . . an announcement of a complete new line of the most revolutionary and outstanding heating and air conditioning units—The New, Luxaire line for '49.

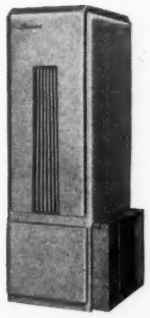
A famous Stylist has completely restyled all Luxaire Cabinets—for coal, oil and gas fired units. The new lines and the gracefully rounded corners make these cabinets unusually attractive.

Furthermore, new superiorities in engineering and construction have kept pace with the new attractive appearance. Heavier gauge steel is used throughout the cabinets, which, consequently, have increased stiffness and rigidity. Ease and speed of assembly, and the precision fitting of the die-made parts continue to be a Luxaire feature.

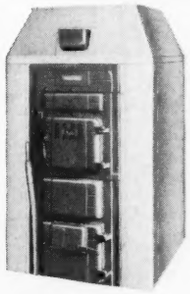
It will be easier to sell the new Luxaire Line for '49 than to compete against it. Write for complete information or see your nearby Luxaire jobber. Whether the demand in your locality is for Coal, Gas or Oil fired equipment—for Steel or Cast Iron heating elements—for gravity furnaces or air conditioning units—Luxaire's eye appealing beauty and competitive prices will enable you to make 1949 a highly profitable year.



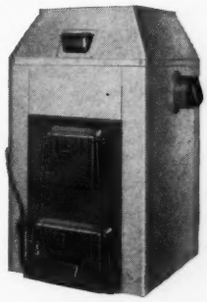
SERIES A
Gas-Fired, Steel, Air Conditioning Unit.



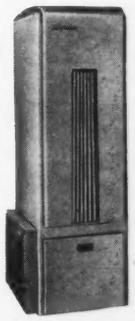
SERIES H
Gas-Fired Utility, Steel, Air Conditioning Unit.



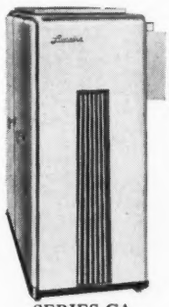
SERIES 700
Coal-Fired, Steel Gravity Furnace.



SERIES C
Coal-Fired, Cast Iron, Gravity Furnace.

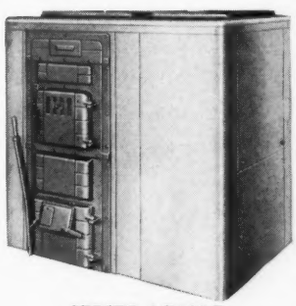


SERIES CH
Gas-Fired, Cast Iron, Utility Air Conditioning Unit.



SERIES CA
Gas-Fired, Cast Iron, Air Conditioning Unit.

SERIES V
Vaporizing Oil-Fired, Steel, Air Conditioning Unit. Also available in Utility Unit and Gravity Furnace.



SERIES AC-700-F
Coal Fired, Steel, Air Conditioning Unit.

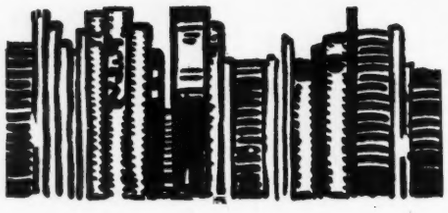
SEE the NEW *Luxaire* Line for '49 at the International Heating and Ventilating Exposition, Spaces 1125 and 1127 in the International Amphitheatre Chicago, Illinois

THE C·A·OLSEN MANUFACTURING COMPANY

Luxaire HEATING & AIR CONDITIONING UNITS

ELYRIA 12, OHIO

fueloil & oil heat



THE BOOK SHELF

Beacon Boiler Book Is Revised and Enlarged

PUBLICATION of the second edition of the Beacon Boiler Reference Book has been announced by Heating Publishers, Inc., New York 16, N. Y. It is a revised and enlarged edition of the original Boiler Book which was published late in 1940. The new edition reprints all data which appeared in the first issue and adds specifications and ratings on domestic heating boilers that have been introduced during the past seven years.

Almost 10,000 models of heating boilers made by 260 companies are included, covering boilers listed under 528 trade names. The Book consists of a Data Section, wherein specifications are listed, arranged alphabetically by company name; an alphabetical Trade Names Index, showing the page number in the Data Section where each appears; a Directory section, listing company names and addresses, together with page numbers where each listing begins.

Ratings and specifications reproduced are data taken from manufacturers' catalogs or other published information, with explanatory notes included where needed. Information included on obsolete and "orphan" boilers is intended to be helpful primarily to heating dealers who encounter boilers in the field on which no data sheets are available. This information, plus specifications on newer and current boilers, has been compiled to facilitate location of boiler data needed by architects, engineers, builders and the heating trade.

In addition to manufacturers' ratings, the Book lists recommended firing rates, amount of heating surface, firebox dimensions, grate area, floor area required, smokepipe diameter, chimney size and height recommended for every known make of heating boiler on which the data could be secured. Models of boilers reported upon range in size up to 2,000 sq. ft. of steam and equivalent hot water radiation.

The second edition, Beacon Boiler Reference Book measures 8½" wide by 11" high, with a binding that facilitates reference by permitting the Book to lay flat when opened at any page. Bound in stiff paper covers, it contains 208 pages of boiler data, trade names index and company directory, plus a section in the front containing advertisements of boiler, burner and accessory equipment manufacturers. Available from Heating Publishers, Inc., 232 Madison Ave., New York 16, N. Y. Price: $3.00.

◈

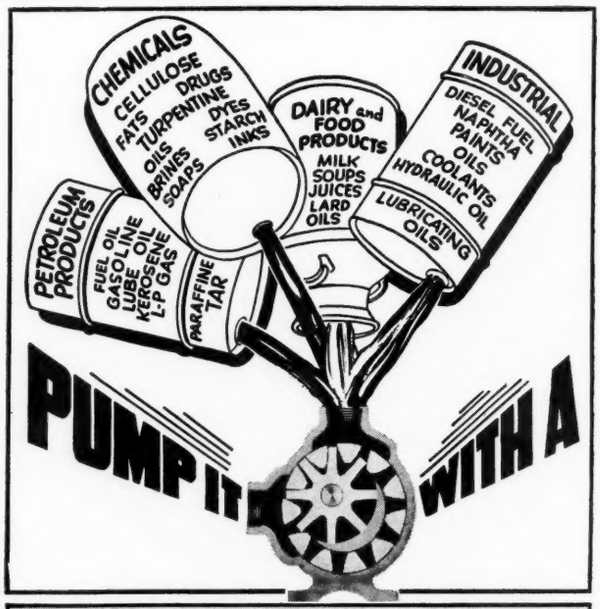
Earl L. Bedard has been elected vice president, Mt. Hawley Mfg. Co., Peoria, Ill. He had been named sales manager for the firm early in 1948 and will continue to direct its national sales and advertising program. His experience in the oilheating industry dates back to 1927 when he became associated with Progressive Machinery Co., Minneapolis. He later organized Oil Electric Co. and headed his own firm until 1940 when he joined Minneapolis-Honeywell. He subsequently became sales manager for Aldrich Co.

STAINLESS STEEL Solenoid Valves*
2¾"
1⅝"
★ Standard pressure range, 5 to 250 psi
★ Dimensions 2¾" high x 1⅝" dia.
★ Impregnated coils withstand moisture and condensation
★ Soft insert seats prevent leakage
★ Spring loaded for positive action
★ Stainless steel parts highly resistant to corrosion and wear
★ Power consumption 10 watts max.
★ Pipe connections to specification
★ Also many special valves for handling pressures from 5 to 850 psi
SKINNER ELECTRIC VALVES

THREE WAY - TWO POSITION
TWO WAY - NORMALLY CLOSED
TWO WAY - NORMALLY OPEN

Skinner Stainless Steel Solenoid Valves are rugged, accurate, compact and long lived. They are worthy additions to any product you may have which requires control or metering of fluid and gaseous media. Skinner will be pleased to make recommendations on your particular design applications — they have for hundreds of others. Write today for details and catalog.

Skinner ELECTRIC VALVE DIV.
THE SKINNER CHUCK COMPANY
137 Belden Ave., Norwalk, Conn.



If your problem is to pump any of these or similar liquids, look to Viking for your answer. Capacities ½ to1050 gpm—pressures to 200 psi,—500 psi on hydraulic oils. Send for free bulletin 1500EE today.

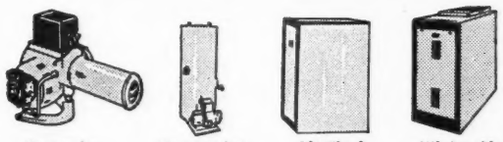
See Our Catalog In SWEETS

Viking PUMP COMPANY
Cedar Falls, Iowa

a DEALER!
a DOLLAR!

There are no 10 o'clock scholars among General Automatic Oil heat dealers. The General Automatic franchise appealed to wide awake go-getters. Here's why:

a COMPLETE OIL HEAT LINE



Conversion Oil Burners | Commercial Water Heaters | Oil Fired Boiler-Burner Units | Winter Air Conditioner Oil Furnaces

General Automatic Dealers can offer a correctly engineered unit for every type and size installation . . . warm air conditioners, oil fired boilers, conversion burners, commercial water heaters.

a MODERN OIL HEAT LINE

General Automatic units meet customer requirements for good looks, oil economy and dependable low cost performance. General Automatic has the modern touch for complete customer satisfaction.

a FAST SELLING OIL HEAT LINE

New General Automatic Dealers are amazed at the "quick sale possibilities" of the General Automatic line. Old dealers from every section of the country report increased volumes against the keenest competition.

A few exclusive dealerships in selected territories still available. Start the new Year right!—Write today!

General Automatic
EST. 1924
General Oil Burner Corp.
2300 Sinclair Lane, Baltimore 13, Md.

FLASH! Fuel Oil tanks are available in quantities. 275 gal. capacity. 12 gauge steel. Underwriters approved. More dealer dollars assured.

"NO MORE Chimney Sweeping for me!"

JUST ONCE, in a New York City building that recently changed over to oil, the maintenance assistant cleaned the vents the old-fashioned way.

Once was enough. "No more old-fashioned chimney sweeping for me!" was his verdict. "Not only was I completely covered with grime and soot myself, but the hand brushing showered the soot down into the ash pit and all over the oil burner mechanism."

"No more of that," all hands agreed.

Now General Electric's Furnace Cleaner Model 175 has the job of keeping this building's oil-fired boilers—and their maintenance men—clean and happy.

EVERY WEEK the black soot that gathers on flues, vents, and doors is suctioned off quickly, thoroughly, easily, into the bag of the G-E Model 175. Saves time, saves tempers, *saves fuel.*

DEALERS WANTED!

Learn about the opportunities in selling furnace cleaners bearing the famous G-E monogram. Do you find that servicing residential heating plants is profitable business? For either or both, you'll find important advantages if the cleaning equipment bears the General Electric name.

Model 175 Furnace Cleaner

SEND TODAY!

Send today for specification sheets. Get details of the General Electric Furnace Cleaner and dealer proposition.

GENERAL ELECTRIC

FURNACE CLEANERS, Dept. 22-1611
GENERAL ELECTRIC CO., Bridgeport 2, Conn.
Without obligation, send specifications of your furnace cleaning equipment ☐. I am interested in your dealer proposition ☐.

NAME.....
FIRM.....
ADDRESS.....
CITY..... STATE.....

fueloil & oil heat

Industry Groups

Activities of local and national industry associations are reported monthly in this department. Secretaries are invited to send reports of their Group's activities to reach the editor by the 20th.

Independent Oil Group Names Executive Director

JOSEPH B. WELLS has been named executive director, Independent Oil Men's Association of New England, Boston, Mass. The position has been unfilled since the death of Clyde G. Morrill last February.

Mr. Wells, during the past thirty years, has been identified with marketing research, industrial analysis, public relations, sales and advertising promotion for major marketing organizations. John P. Birmingham, president of IOMA, cites his appointment as a result of Association policy to extend its work beyond its usual functions into the broader field of group planning for more efficient and economical operation in fueloil distribution.

Name Chairmen For Indoor Comfort Conferences

COMMITTEE CHAIRMEN for the Indoor Comfort Conferences scheduled during 1949 have been announced by the National Warm Air Heating and Air Conditioning Association, Cleveland 14, Ohio. Following is a list of the conference dates and places, with the name of the chairmen in charge of arrangements and reservations:

Kalamazoo, February 9-11, chairman, Glen W. Rynbrand, Glen W. Rynbrand Co., Kalamazoo 62, Mich.; Detroit, February 14-16, chairman, Fred R. Bishop, Brundage Co., Detroit 6, Mich.; Evansville, February 21-23, chairman, F. P. Bean, Ohio Valley Hardware & Roofing Co., Evansville 2, Ind.; Peoria, February 28, March 1 and 2, chairman, E. A. Eichenberger, F. Meyer & Bro. Co., Peoria 2, Ill.; Duluth, March 10-12, chairman, J. P. Nelson, Kelley-How-Thompson Co., Duluth 1, Minn.; Omaha, March 15-17, chairman, Lee C. Norton, A. Y. McDonald Mfg. Co., Omaha 8, Neb.; St. Louis, March 21-23, chairman, C. S. Franke, American Furnace Co., St. Louis 3, Mo.; Binghampton, April 7-9, chairman, C. H. Starr, Northrup Supply Corp., Binghampton, N. Y.; Cleveland, April 14-16, chairman, Don A. Fisher, Cleveland 12, Ohio; Columbus, April 18-20, chairman, Newt T. Hess, Vorys Bros., Inc., Columbus 8, Ohio.

Applications and registration fees of $15.00 per person should be mailed directly to the chairman in charge of the conference the applicants desire to attend. The ten cities shown above are the only ones in which conferences are planned in 1949. It is planned to accept applications in the order of their receipt up to the limit for each conference.

Round Table Discussion Features MOHA Meeting

THE REGULAR monthly meeting of the Massachusetts Oil Heating Association, Inc., Watertown 72, Mass., was held December 14 at the Fox and Hounds Club, Boston.

It featured a round table discussion, headed by William Briggs, vice presi-

Make Your Hearths
With the Original
R & I Hearth Cement

You can be sure you're using the right cement to make your rotary hearth when you use R&I Hearth Cement, the original castable refractory.

Since it was introduced over 19 years ago oil burner men have poured thousands and thousands of hearths made of this cement. Many are still in service.

To use, simply mix with water and pour over the sheet metal hearth plate of rotary burners. A quick troweling gives it a smooth, hard surface that is extremely rugged.

Get it from your supply house. Write us for Bulletin OB-99.

R&I
Refractory & Insulation Corp.
116 Wall St., New York 5, N. Y.
Chicago 4, Ill. - Newark 2, N. J.
Philadelphia 2, Pa.

Galongage

The Ideal Gauge for Basement Tanks

CHECK THESE OUTSTANDING FEATURES

- Time and money saver—comes fully assembled.
- Accurate readings—measures in 10-gallon spacings.
- Precision built for years of service.
- Eye appeal and easy readability.
- Listed as approved by Underwriters' Laboratories.

When making replacements and checking oil burners for greater efficiency, install *Galongage.*

When ordering, specify depth of tank and size of opening.

APPLIED MECHANICS COMPANY
167 OLIVER STREET, BOSTON 10, MASSACHUSETTS

IT PAYS

to recommend and install

Klemm
FUEL OIL FILTERS

Equipped with CHEMISTONE
the original Controlled Porosity Element

MODEL FF 430G
with "Hi" Tensile
glass bowl.

On every service call, make it a point to suggest a Klemm Fuel Oil Filter as the best way to insure an *uninterrupted* flow of oil to the burners. *It traps dirt, sediment, water and other foreign matter.* All your customers need this protection. Klemm Filters are low-priced, dependable and highly efficient. You profit on each sale *and eliminate the cause of many unnecessary emergency calls.*

There are other filters but none with *Chemistone!*

HERE'S WHY KLEMM CHEMISTONE FILTERS SELL FASTER

Streamlined . . . lots of eye appeal —a carefully designed filter that looks right with the finest installation.

Engineered . . . Scientifically engineered to give 100% filtration under all conditions. Easy to clean —no tools or wrenches needed.

Packaged Right . . . Put up in dealer cartons of 12 each or, assorted. Stocks easily . . . ships safely.

Priced Right . . . Superior in action, it's priced for quick sales. You'll find it doubly profitable to push Klemm filters.

NOW A CHOICE

MODELS FF 430G, FF 401G with "Hi" Tensile glass Bowls
MODELS FF 430*, 401* with metal bowls

*listed for reinspection with Underwriters Laboratories

Write today for full information!

Klemm
AUTOMOTIVE PRODUCTS COMPANY

1718 Damen Avenue **Chicago 47, Illinois**
Export Division: Guiterman Co., Inc., 35 S. Williams Street, New York 4, N. Y.

HOW MORE SALES
+ CUSTOMER SATISFACTION
= MORE PROFITS
+ BETTER REPUTATION

Successful business is just arithmetic ratio. Like this— the more sales you make, the greater your profit. Or, the more you satisfy your customers, the better your reputation. Those points are mighty important items to you, aren't they? Isn't it advisable then to protect them? That is just what being an Electrol Ball Flame Oil Burner dealer does for you.

ELECTROL
the OIL BURNER with the
"BALL FLAME"

Since 1918 Electrol has been making better oil burning equipment— making your job as dealer easier. Today, the Electrol Ball Flame Oil Burner stands for thousands of satisfied customers, continuous sales and profitable business. Why not join those who have made those sales? To your customer, it means years of quiet, clean, efficient heating service — performance that is high in comfort and low in operating costs. That's good for you too, isn't it?
Sell an oil burner that is different! You'll have the full assistance of the Electrol factory; of the printed materials — literature which helps you sell; display signs; advertising and promotion.
Write today. Find out how you can profit by being one of the successful Electrol dealer organization — how sales and satisfied customers will bring you more profits and better reputation. Get the facts on Electrol!

ELECTROL BURNER MANUFACTURING CO., INC.
22 UNION AVENUE, RUTHERFORD, NEW JERSEY

dent, Oil-Heat Institute of New England and president, Valley Oil Co., Inc., Middletown, Conn. Stanley Patterson, Waltham Oil Burner Co., Boston and Francis Gilbane, past president, Oil-Heat Institute of New England and president, F. Gilbane, Inc., Pawtucket, R. I., completed the panel. The topic was "How to increase sales and derive a greater profit during the winter season." A general discussion period followed. All members of O.H.I. of New England were invited to attend.

Census Survey Shows Heating Increase

A SURVEY made by the Bureau of the Census in 1947 and reported by Plumbing and Heating Industries Bureau, Chicago 1, Ill., reveals a steady improvement in living standards on farms, as well as in cities.

In 1940, for example, only 42% of America's homes had central heating. In 1947 the number had increased to 49%. In 1940 69.8% of all dwelling units had running water in the house; in 1947, 78.3%. Statistics for farm homes revealed that in 1940 only 17% of the farms had running water, but the number had nearly doubled by 1947 to 33%.

While showing marked improvements in homes, the Bureau cites the figures as indicative of the vast remaining market for plumbing and heating equipment of all types.

Cooking and Heating Group Holds Convention, Exhibit

THE INSTITUTE of Cooking and Heating Appliance Manufacturers, Washington 8, D. C., held its 16th annual convention and exhibit at the Netherland Plaza hotel, Cincinnati, Ohio, on December 6, 7 and 8. Twenty-one scheduled meetings were held, with exhibits of seventy suppliers, featuring new developments.

A series of management group meetings were subdivided among credit managers, financial men, sales and advertising executives and labor relations officials to provide a medium of discussion for each field. Product division meetings featured talks by merchandising, engineering and production men, with a major portion of each program devoted to informal discussion periods. Sound budgeting policies for 1949 was the subject of a forum discussion featuring five prominent stove men. The annual reception and banquet was a highlight of the gathering.

Professor Konzo Honored At Warm Air Convention

LEAVING ACTIVE DIRECTION of warm air heating research work after nineteen years, Prof. Seichi Konzo of the University of Illinois College of Engineering, was honored at the December 9 and 10 meeting of the National Warm Air Heating and Air Conditioning Association, Cleveland 14, Ohio. Prof. Konzo now is devoting his attention to graduate teaching primarily, while continuing as advisor on heating research.

At the Cleveland meeting, Prof. Konzo was presented with an illuminated scroll and luggage, in recognition of his work, which included preparation of installation codes. The scroll says, "It is recognized and widely acknowledged that your nineteen years of unselfish service in the cooperative warm air research investigation with the University

DO ALL SIX CORRECTLY!

DWYER TRANSPARENT COMBUSTION TEST SETS

1. Determine proper CO_2 content
2. Check for air leaks
3. Adjust air controls
4. Know draft conditions
5. Level burners and controls
6. Find stack temperature readings

DWYER Combustion Test Set includes CO_2 Indicator, Visi-Draft Gage and Level and Stack Thermometer... every instrument necessary to do these jobs ACCURATELY. Durable carrying case, all accessories and instructions.

DWYER Bulletin 220 sent on request - Describes this set and other styles.

F. W. Dwyer Mfg. Co.

315 SOUTH WESTERN AVENUE, CHICAGO 12, ILLINOIS

DOYLE WELCOMES YOU

to the

INTERNATIONAL HEATING and VENTILATING EXPOSITION

MEET US AT BOOTH 1344-46

OR

SUITE 538-39-40

January 22-28th

MORRISON HOTEL

Manufacturers of

THE GRAND RAPIDS FURNACE CLEANER

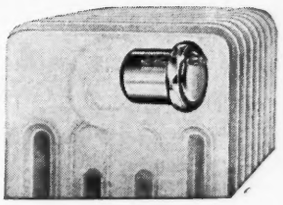
DOYLE VACUUM CLEANER CO.

233 Stevens St., S.W. Grand Rapids 7, Michigan

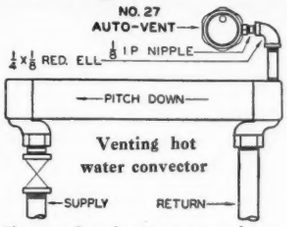
A SURE THING!

STOP *Hot Water Circulation Troubles!*

Now You Can AUTOMATICALLY Vent Out the Air that Causes "Sick" Radiators and High Cost Heating



AUTO - VENT installed on hot water radiator



Thousands of contractors have already seen the light!

Instead of taking a chance on manually operated vents (air chamber plus copper tubing plus key valve), they now use Maid-O'-Mist AUTOMATIC Air Eliminators as standard equipment on hot water jobs.

And when you figure total costs —labor and materials—they say that Maid-O'-Mist AUTO-VENTS actually costs LESS installed. Think of the customer good-will they build.

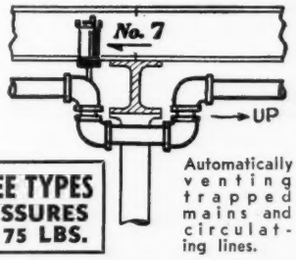
CASH IN

ON THIS PROFITABLE IDEA

By automatically and continuously VENTING OUT the air as it accumulates in a convector, you're certain to get satisfactory, low cost heating.

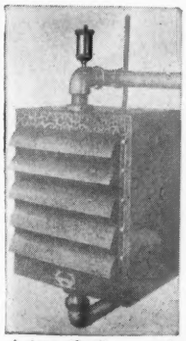
That's exactly what Maid-O'-Mist AUTO-VENTS do!

They are FULLY automatic, trouble-free. At least stock a few to "iron out" trouble jobs!



Automatically venting trapped mains and circulating lines.

THREE TYPES PRESSURES TO 75 LBS.



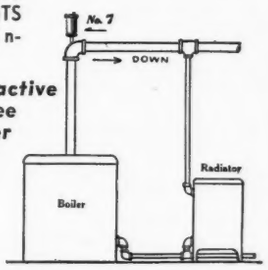
Automatically venting out air from hot water unit heater.

And Note Other "Spots" Where AUTO-VENTS Protect Your Reputation

Circulation "troubles" of many different kinds can be overcome by using these low priced Automatic Air Vents. Study the pictures!

Yes, wherever air pockets or air traps are also likely to clamp down on free circulation in pipe lines, unit heaters, coils, baseboards, etc., Maid - O' - Mist AUTO - VENTS should be installed.

Write for Attractive Prices or See Your Jobber



Automatically venting out air from overhead hot or cold water lines.

SEE OUR EXHIBIT

9th Heating & Ventilating Exposition at International Amphitheatre, Chicago—January 24 to 28—Booth 1015

MAID-O'-MIST INC.

3221 N. PULASKI RD.
CHICAGO 41, ILLINOIS

AUTOMATIC HUMIDIFIERS FOR ALL TYPES OF HEATING SYSTEMS

fueloil & oil heat

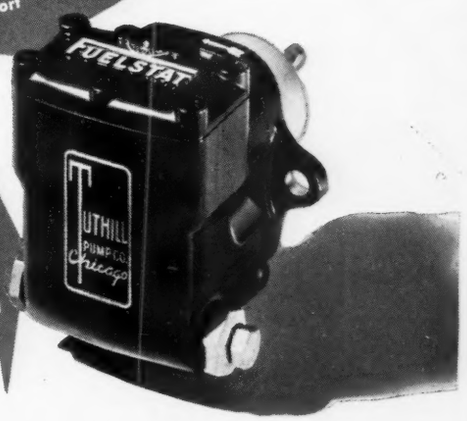
NOW... ONE TUTHILL FUELSTAT OFFERS 4-WAY SERVICE

1... Clockwise rotation with left-hand nozzle port

2... Clockwise rotation with right-hand nozzle port

3... Counterclockwise rotation with left-hand nozzle port

4... Counterclockwise rotation with right-hand nozzle port



To reduce your manufacturing, handling and service costs, Tuthill has designed the new Model 30EN Fuelstat for amazingly flexible performance. Through exclusive features that make possible easy adjustment in the field, one Fuelstat now gives four-way service. What's more, the new Model 30EN is available for immediate delivery. Write for full details and quotation on your requirements.

TUTHILL PUMP COMPANY

939 East 95th Street, Chicago 19, Illinois

of Illinois has added immeasurably to the development and success of the association and the industry it represents."

REMA Moves Offices

OFFICES of the Refrigeration Equipment Manufacturers Association have been transferred from Pittsburgh and now are located at 1346 Connecticut Ave., Washington 6, D. C.

Oregon Heating Industries Plan Weekly Lunches

BEGINNING January 7, Oregon Heating Industries, Portland 4, Ore., is holding weekly luncheon meetings every Friday. They are being held at Burns Restaurant and will be informal round table discussions. Out of town members are invited to attend when they are in Portland. Forrest Tower is chairman of the committee arranging the luncheons.

Portland Oil Members held a dinner meeting at Berg's Chalet on December 8. Ian Shaw, chairman of the Oil Committee, presided. Good attendance was reported at the meeting which discussed the cost of truck insurance and decided to make a study of the subject. Ken Goodall was appointed chairman of a committee to conduct the survey. On November 3, a meeting was held in Eugene, Oregon, with members attending from Eugene and Springfield. L. P. Curtsinger is new president of this group and presided at the meeting which was followed by a social hour.

Tasker Addresses English Engineering Institution

CYRIL TASKER, director of research, American Society of Heating & Ventilating Engineers, New York 10, N. Y., recently visited England and addressed a special meeting of the Institution of Heating and Ventilating Engineers in London, the largest attended meeting ever held by the group.

Mr. Tasker described the research progress and accomplishments of the American Society in the fields of heating, ventilating and air conditioning during the past thirty years. He explained the organization of the Society's laboratory, maintained at Cleveland with a full-time director and staff of research engineers, and explained that the basic facts developed are translated into practical data in the pages of the *Guide*, published by the Society.

Dr. F. M. Lea, director of building research for the British Government, commented on the research program as outlined by Mr. Tasker and complimented the Society for its cooperative effort instituted for the benefit of its members and the good of the industry.

Wisconsin Christmas Meeting; Name Committee Members

THE DECEMBER 16 meeting of the Wisconsin Oil-Heat Association, Inc., Milwaukee 2, Wis., was the first under the new slate of officers elected in November. A discussion of the 1949 program of activities was among the matters on the agenda. A meeting of the board of directors preceded the meeting and acted upon a membership application. An old fashioned Christmas party was held after the meeting for which each person in attendance was asked to bring a present to exchange with another member.

On December 14 president J. L. Savage announced members named to

Now Available!

NEW COMBUSTION HEAD

DESIGNED AND PATENTED BY THE SHELL DEVELOPMENT CO.

Two important advantages for manufacturers whose pressure type burners are equipped with the new SHELL DESIGN COMBUSTION HEAD—

1 Economy of fuel. Field tests indicate 20% and more oil saving. A CO_2 as high as 15% is obtainable with no smoke, even when using 100% catalytic fuel oil. The oil situation makes such economy a positive necessity, and the CUSTOMER SATISFACTION produced is a real SALES PROMOTER.

WE SOLICIT INQUIRIES FROM MANUFACTURERS OF OIL BURNERS

2 Replacement of obsolete, inefficient burners by burners equipped with the NEW SHELL DESIGNED COMBUSTION HEAD will be quickly paid for out of oil savings!

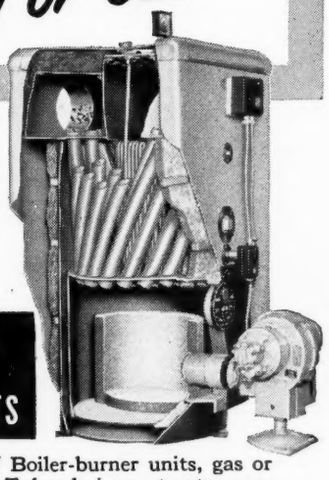
Manufactured by

MODERN DIE AND MACHINE COMPANY

166 PLEASANT STREET, BOSTON 25, MASS.

Under license from the Shell Development Company

Finer Performance with Oil or Gas



ASME CONSTRUCTION

EXCLUSIVE SPIRAL TUBES

Mt Hawley BOILER-BURNER UNITS

104,000 to 1,043,000 BTU Boiler-burner units, gas or oil-fired. Exclusive Spiral Tube design extracts more heat, reduces stack temperature by 100°. 7 sizes—3 domestic; 4 commercial. Shipped assembled, just remove crate. Easy to install. All sizes available galvanized for water heating. Write for literature.

MT. HAWLEY MFG. COMPANY

3, Mt. Hawley Airport, Peoria, Illinois

Manufacturers of a complete line of conversion oil burners—0.65 to 20 G.P.H.

What boiler would you recommend for a $350,000 home?

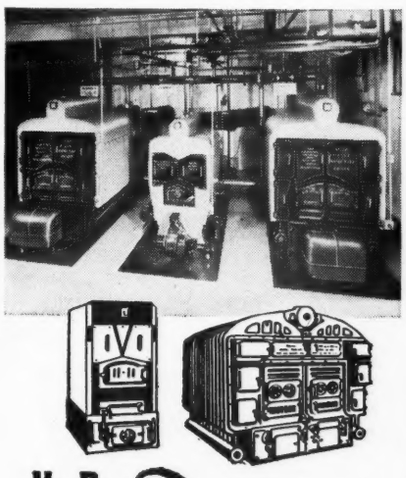
This functionally modern home was recently built in Bloomsburg, Pa., by Harry L. Magee president of The Magee Carpet Company; it is one of Pennsylvania's finest show places. Berninger, Haag, and D'Entremont, Architects; George A. Heath, Heating Engineer; Wm. L. Coombs, Heating Contractor; Percy Swank, Building Contractor.

The finest, of course. That's what the architect, engineer, and contractor did when they built this magnificent home. In fact, they chose *six* H. B. Smith boilers — two to heat the main house, by radiant heat and by air conditioning . . . one to supply domestic hot water . . . two to warm the swimming pool water and recirculate it . . . still another to supply domestic hot water and car-washing water to the garage.

No matter the size of the home your client wishes, you can recommend an H. B. Smith boiler that will give him "luxury" heating at bargain basement prices—for Smith-Mills boilers are designed and engineered to deliver maximum heat at lowest cost. True, they cost a little more to buy, but smaller fuel and maintenance bills more than make up the difference.

Which boiler will you specify on the next job where the best in heating is requested? You can't go wrong if you recommend H. B. Smith! THE H. B. SMITH CO., 68 Main St., Westfield, Massachusetts.

Largest boiler room in the Magee residence (there are several others!) includes two No. 340 oil-fired boilers and one No. 24 Hy-Test oil-fired hot water supply unit, all H. B. Smith products.



H. B. Smith

CAST-IRON BOILERS

Offices and Representatives in Principal Cities

the various Association committees. Names of the chairmen and the committees they head are: George Gross, membership; Lawrence Woehrer, advertising; Alfred Hegeman, legislative; John Weiler, finance; Clarence Gorder, golf outing; Harry Bringolf, home show and Paul Zinn, grievance. Four committees also were appointed to complete arrangement for the annual dinner rally, whose date will be announced later.

ASRE Publishes Another Application Data Booklet

THE FORTY-FOURTH Application Data Section on the subject of air conditioning design has been issued by the American Society of Refrigerating Engineers, New York 18, N. Y. AD 44 was published as part 2 of the November issue, *Refrigerating Engineering,* describing general procedure for designing an air conditioning system. Authors are H. C. Hoffman, Carrier Corp. and G. B. Priester, Consolidated Gas Electric Light and Power Co. of Baltimore.

Included are a group of definitions pertaining to the principles upon which air conditioning design are based. Heat loads, determining amount of refrigeration, heat zones, mechanical equipment and controls all are part of the subject matter of the 6-page brochure.

◈

Thomas H. Terrio, West Newton 65, Mass., recently was appointed distributor for Boston metropolitan area by General Oil Burner Corp., Baltimore 13, Md. His main function will be development of sales of the General Automatic line in his territory, and to assist outlets with problems of oilburner installation and servicing.

William J. Olvany, past president of Heating, Piping and Air Conditioning Contractors National Association, died December 13 at his home in Forest Hills, N. Y., at the age of 74, after a brief illness. He was born in New York City on July 24, 1874 and entered the heating business as an apprentice. In 1898 he opened his own business in downtown New York and, except for a brief period, his shop has remained at 100 Charles St. In 1939 he was elected president of the national association. He is survived by his wife, two daughters, two sons and two grandsons.

STANDARD AND SPECIAL ASSEMBLIES IN ALL TYPES AND LENGTHS

The majority of oil burners being installed or serviced today are equipped with Dielectric electrode assemblies . . . and for good reason—

1—They are made with the finest steatite insulators and electrode tips . . . in any designs to meet specific burner requirements.

2—They have all Underwriters Laboratories, Inc., approvals.

3—Standard assemblies are available for quick delivery.

4—Assemblies with special insulator and electrode sizes and shapes can be made on short notice.

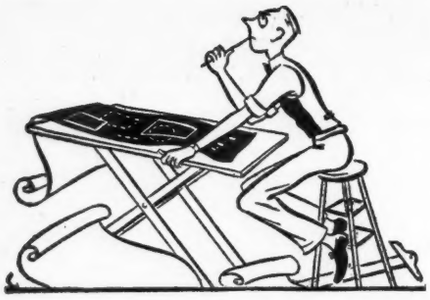
In addition, Dielectric high tension cable assemblies and Dielectric bus bars for transformer and electrode layouts are available for any practical burner hook-up.

Let Dielectric's complete, prompt engineering cooperation help improve your burner and expedite production. Write for bulletin.

DIELECTRIC PRODUCTS CO., Inc.

125 Virginia Ave., Jersey City 5, N. J.

Boston • Philadelphia • Des Moines



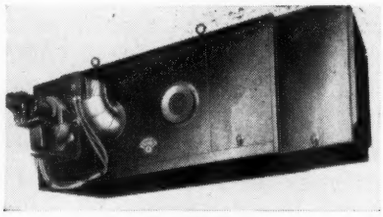
New Products

Burnham Introduces New Pacemaker Boiler

PACEMAKER oilburning boilers are to be shown for the first time at the Chicago Heating & Ventilating Exposition by Burnham Boiler Corp., Irvington, N. Y. The units, especially designed for burning oil, feature fin type construction with vertical flue travel and machine ground gas tight construction. Burnham Pacemakers are equipped with a twin combustion chamber to absorb hot gases more effectively and complete built-in copper domestic hot water heaters for either tankless or storage type operation can be furnished.

Superfex Ceiling Unit Employs Two Speed Blower

MODEL 550 ceiling-suspended furnace-burner unit, available from Perfection Stove Co., Cleveland, Ohio, features a new axial-flow, two-speed blower for forced circulation of heated air. When heat is needed a thermostatic control

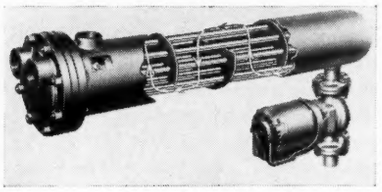


starts the burner and turns on the blower. The blower runs on slow speed but moves to high speed as bonnet temperatures rise. After the thermostat has been satisfied, the blower drops back to low speed and continues to utilize furnace heat.

Superfex model 550 is fired with a pressure atomizing oilburner and has a rated output of 200,000 Btu/hr. at the bonnet. It has been designed especially for establishments with large open areas to be heated, but where floor space is at a premium. The entire unit weighs 650 lbs. and is shipped assembled, except for the burner unit and controls. After installing burner and controls, which can be placed on either side of the casing, the unit is suspended and required duct work and wiring completed.

B & G Larger Heater Features New Tankless Design

WU SERIES tankless heater, manufactured by Bell & Gossett Co., Morton Grove, Ill., have been announced to meet a growing demand for larger type tankless or instantaneous indirect water



heaters. The heater features a new design, made for use with a circulating pump on the boiler water side. The tube bundle has a baffling arrangement outside the tubes for complete wiping action along its entire length.

Increased gallonage per sq. ft. of heat-

8" SCALE—Widest Scale of Any Mechanical Air Velocity Meter!

The FloRite is an unsurpassed sales and service aid in heating, ventilating and air conditioning work. On installation and service work it is used to determine velocity and direction of air flow from registers and grilles for the purpose of checking rate of air delivery, balancing the system and adjusting deflecting vanes and louvers of registers so as to obtain "draft free" air distribution. These tests cut installation and service time, prevent expensive call-backs, and promote customer goodwill. The FloRite is equally helpful for selling new equipment or modernization. It can be used in many ways to convincingly demonstrate discomforts and inefficiencies of a worn-out or inadequate system.

The FloRite is entirely self-contained. It has no hose or probe, and gives all readings required for heating, ventilating and air conditioning work. The detachable handle facilitates use of the FloRite at low wall or high side wall registers. By screwing a ⅛" pipe into the handle the FloRite can be conveniently held against ceiling grille.

The FloRite is equipped with a unique scale lock which makes it possible to retain the reading until the lock is released. For ceiling grille readings, this lock is easily manipulated by means of a piece of string. This feature makes the FloRite exceptionally adaptable for indicating air velocity in hard-to-reach or dimly lit locations.

Dealer's Net Price *with leatherette carrying case . . .* **$19.80**

Ask your jobber for the FloRite or write for Leaflet 759.

BACHARACH INDUSTRIAL INSTRUMENT CO.

7000 BENNETT STREET • • PITTSBURGH 8, PA.

Modern Heating Plants conserve fuel save money

THERE'S BIG BUSINESS in replacing old oil burners with modern efficient heating units.

This year, sell conservation and efficiency.

GULF

Gulf Oil Corporation • Gulf Refining Company

DIVISION SALES OFFICES:

Boston • New York • Philadelphia

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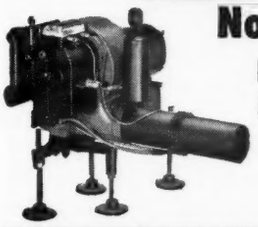
★ RAYFIELD AUTOMATIC ★



No. 5 OIL BURNERS

REDUCE HEATING COSTS... INCREASE YOUR PROFITS

Burn No. 5 heavy fuel oil. Self-contained, all electric. Self-lubricating. Many new exclusive features. Write for full details.

GOOD TERRITORIES OPEN

C. L. RAYFIELD CO.
2010-18 S. Halsted St., Chicago 8, Ill.

NEW! Rayfield HEAT RECLAIMER

Saves heat now wasted going up the chimney! For any heating system 5" to 10" smoke pipe, whether hand or automatically fired, regardless of type of fuel used.

FULL AUTOMATIC OPERATION
BY SELF-CONTAINED THERMOSTAT

• LOW IN PRICE • 1-HOUR INSTALLATION

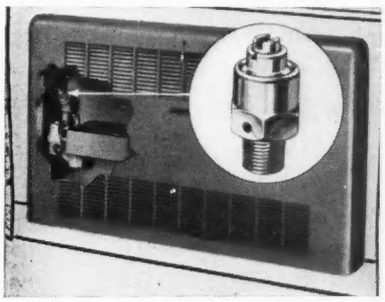
Available to All Dealers

Write Today for Full Details

ing surface is claimed for the heaters as a result of the pump circulating boiler water over the coil and improving heat transfer. Twelve sizes are available, with capacities in gph from 200 to 2,000, heat rise from 40° to 140° F.

Dole No. 20 Air Valve Now Fully Automatic

SUPPLEMENTING a semi-automatic valve introduced for the same purpose a few months ago, Dole Valve Co., Chicago 12, Ill., announces a completely auto-



matic No. 20 hot water air valve. Developed to eliminate air from convectors, radiators, mains, baseboard radiators and panel heating units the automatic No. 20 requires none of the preliminary soaking needed with earlier types.

Applications include both forced and gravity circulation systems, for use on new or existing heating plants. A coin or screw driver sets a selector screw to a choice of three functions: fully automatic air eliminator; manual shut-off; manual venting.

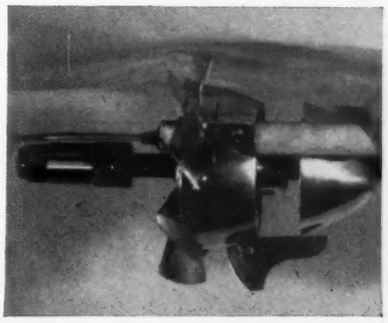
Tankit Repair Clamps Stop Tank Leaks

TANKIT, consisting of a steel strap 12 ft. long, two locking collars and an oil-resisting neoprene patch, is designed to plug leaks in any exposed fueloil storage tank. When a leak is discovered the steel strap is placed around the tank, the neoprene patch slid along the band until it covers the leak and the strap clamp locked. It can be used even on tanks with short legs and the leak on the underside of the tank, by positioning the patch with a stick or length of pipe.

The patch is not meant to be permanent, but is intended to be applied immediately to obviate the necessity for pump-outs, to permit uninterrupted use of the heating system and leave the dealer free to repair the tank, replace it with another basement tank or larger size, at his convenience. The patch measures 1¼" x 1". Manufactured by the Tankit Co., Cedarhurst, N. Y., distribution is being handled through wholesale outlets.

FAE Laboratories Offers Jet Super Heat Head

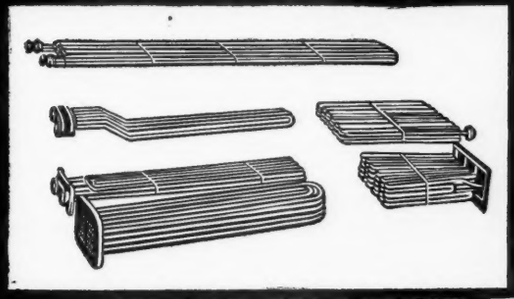
A COMBUSTION HEAD, being offered by FAE Laboratories, Brooklyn 20, N. Y., is announced as the Jet Super Heat. When fitted to a burner with a 4" blast



tube, the head will cover a capacity range from ½ to 5 gph on a 5 x 3 fan. With a 4½" blast tube, the range is extended up to 12 gph and models can be provided for 6" blast tubes, capacities up to 24 gph.

The head operates on the jet princi-

Kam Tankless Coils



KAM

For all Steel and Cast Iron Boilers, Any Style... Any Make...

No matter what your tankless coil requirements may be, KAM is prepared to serve you on short notice. KAM gives you and your customers the advantage of 42 years' experience in the design and fabrication of water heating equipment. Modern facilities . . . modern plant . . . KAM is fully abreast of present day plant and engineering practice. Contact KAM today . . . give name and number of boiler; the correct coil will be shipped promptly.

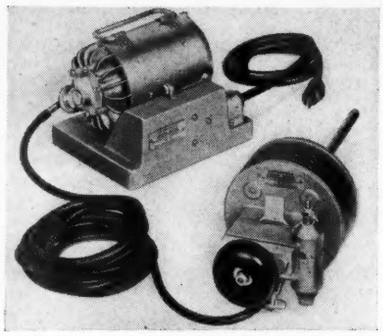
KAM WATER HEATER MFG. CO., INC.
239-249 ALABAMA AVENUE BROOKLYN 7, N. Y.

ple, offered to burn catalytic fueloils efficiently and eliminate pulsations, soot formations and ignition failures in burner operation. A controllable orifice on the blast tube is readily adjustable to provide proper settings to insure the best combustion conditions.

Bacharach Smoke Meter Has Adjustable Range

IMPROVEMENT of its smoke meter to permit adjusting of the sampling interval and to measure particle-like matter suspended in gas or oil, has been announced by Bacharach Industrial Instrument Co., Pittsburgh 8, Pa. The instrument, consisting of a sampling unit and an electrically-driven vacuum pump, automatically makes a permanent record of an actual smoke sample on a paper test disc. Operation requires only the insertion of a test disc, adjusting the time smitch for any interval between 30 and 90 seconds and flicking the time control switch.

Shadings of the spots on the test disc provide an accurate means of grading the readings as to the smoke's density.



Samplings also can be taken of dust in the atmosphere, or other applications where knowledge is required of the concentration of particles in gas or air.

Pacific Offers Fittings For Quick Heater Hook-Ups

ANNOUNCED as an addition to the accessory line of Pacific Steel Boiler Div., U. S. Radiator Corp., Detroit 31, Mich., is a set of quick hook-up fittings for use with instantaneous water heaters installed in Pacific residential boilers.

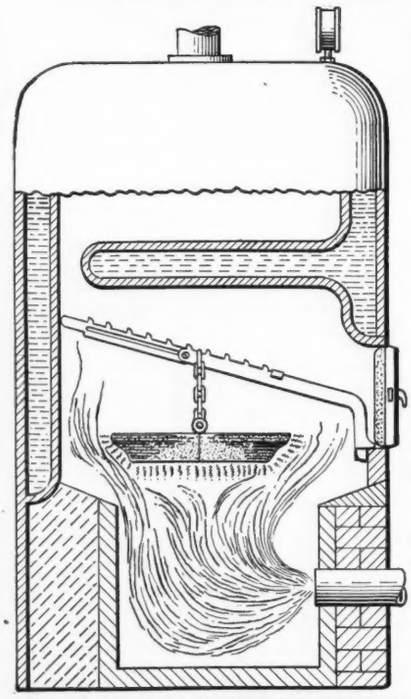
The packaged fittings include a tempering valve to proportion automatically hot and cold water and are installed to provide hot water from 135° to 145° F. at the outlet.

Monarch Combustion Head For Burners Up To 2.5 Gph

G-74 COMBUSTION HEAD, developed by Monarch Mfg. Works, Inc., Philadelphia 34, Pa., is suitable for burner capacities from .75 to 2.5 gph and has no external adjustments. It utilizes a ring of high velocity spinning air, injected into the outer area of the cone of atomized oil by a multi-vaned stainless steel turbulator, and a central porcelain spiral, which spins a mass of air into the center of the oil cone to complete and improve mixing. Featuring a built-in electrode assembly, the head is advanced as the result of several years experimental work, plus field testing. It can be used by manufacturers of original equipment or can be adapted in the field for attachment to existing installations.

Instructions issued by Monarch include recommendations for fan and combustion chamber sizes to attain maximum operating efficiencies. For best results, a fan wheel with minimum diameter of 6", operated at 1725 rpm, is advised, with fire boxes constructed to provide 85 to 90 sq. ins. of floor space for

IRON - HIDE
BAFFLES & SUPPORTS
SAVE FUEL!



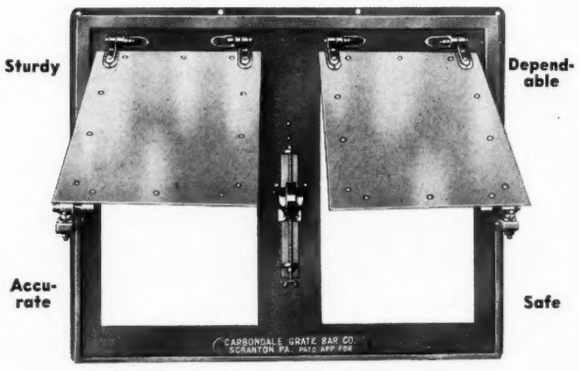
AND COST SO LITTLE

DEALERS
WRITE FOR SPECIAL INTRODUCTORY OFFER

JOBBERS
WRITE FOR INFORMATION AND DISCOUNTS ON THE COMPLETE IRON-HIDE LINE OF COMBUSTION CHAMBERS & BAFFLES

IRON-HIDE REFRACTORY PRODUCTS
DOCK ST., MATAWAN, N. J.

Carbondale Dampers
both
Barometric and Lift Type
The only dampers with
IN BUILT RELIEF GATES



Flat back Barometric with damper closed and relief gates open

These light aluminum gates, hinged at the top of the damper blade, fly open instantly at the slightest excess gas pressure, from a puff back in Boiler, breeching or stack. Available in sizes 18" x 14½" to 72" x 48". For round, flat, horizontal or vertical breechings or stacks.

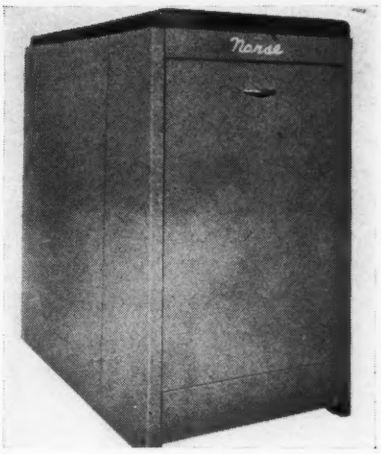
CARBONDALE GRATE BAR CO.
1317 Clay Ave., Scranton, Pa.—19 Rector St., N.Y.C.

each gph of oil burned. Round, hexagon or tear-drop fire boxes are preferred, although, it is pointed out, that if an existing firebox is close to recommended size and in good condition it is improbable that a new chamber is needed.

Domestic Heating Models Developed by Norse Boiler

FIVE SIZES of boilers for domestic heating have been developed by Norse Boiler Co., New York 7, N. Y. Net ratings for steam boilers range from 400 to 1100 sq. ft.; for hot water boilers from 640 to 1760 sq. ft.; heating surfaces of both types ranging from 24 sq. ft. for the smallest to 65 sq. ft. for the largest model. When fired with oil, firing rates recommended are from 1 to 3 gph. Models also can be fired with gas. A tankless coil is supplied as standard equipment, furnishing service hot water up to 260 gph.

The steel boilers use 1/4" boiler plate for the shell, 5/16" top and bottom crown sheets and 4" and 3" 10 gauge steel tubes, all welded construction. Standard equipment, in addition to the tankless coil, includes a combustion



chamber, steam or hot water trim and a steel insulated extended jacket. Designed primarily for small home use, the boilers employ an improved method of baffling the vertical tubes, with resultant low stack temperature readings.

Sheet Metal Tool Utilizes Vise-Grip

A SHEET METAL TOOL, announced by Petersen Mfg. Co., DeWitt, Neb., utilizes a Vise-Grip, eliminating muscular exertion required in hand-gripping the handles of the ordinary seamer or tong. The tool features an extra deep throat, accommodating material up to 1¾", and measures 8" overall. The no-slip grip is designed to make possible smoother bending and shaping.

Home Gas Plant Generates Dry Fuel Gas

GIRARD GAS GENERATORS, made by Fuel Gas Generator Equipment Corp., Youngstown, Ohio, automatically produce a non-toxic gas for cooking, refrigeration, water and space heating in rural areas. The self-contained weather- and tamper-proof unit is sunk partially in the ground outside the home, and consists of a fuel storage tank, a rotor-vane air pump and a weather-sealed electric motor. Ordinary liquid pentane is converted by a cold carburetion principle into dry fuel gas. When not in use, there is no pressure and no gas.

York-Heat N-38 Is Improved Burner Model

REFINEMENTS of a York-Heat burner, with a capacity from 5 to 10 gph, has been announced by York-Shipley, Inc., York, Pa. The new burner, designated

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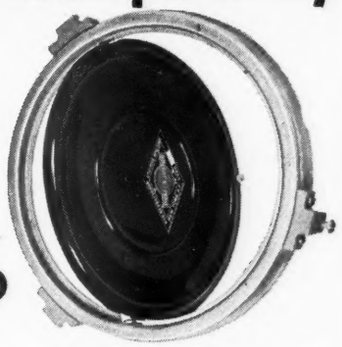
DRAFT-A-JUSTORS

Cut Fuel Consumption by

10% TO 30%



The *Preferred* Draft-A-Justor is the original, patented Draft-A-Justor . . . improved to include the latest in engineering developments.

Stainless steel bearings and weather resistant metals provide long-life service without breakdown due to rust or wear . . . assure *continuous* fuel savings.

Millions now in satisfactory use.

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SIZES

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Industrial sizes from 2' x 2' to 5' x 12'.

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to head sales of prominent manufacturer of oil burners and boiler units. Give full and complete details in first letter.

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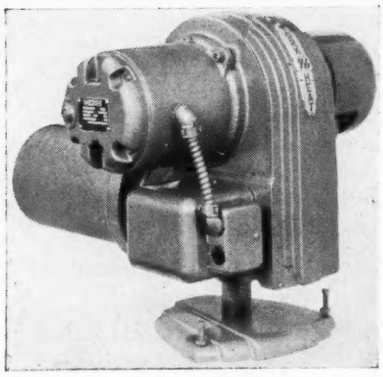
NEWARK 7, N.J.



model N-38, employs dual nozzles to achieve the desired firing rate while using a conventional 1/6 hp motor, fan and pump speed of 1725 rpm. These changes have enabled the company to price the improved model below the previous model.

A larger fan is used in the N-38 and the dual blast tube eliminated, except for a short section used to support the nozzle pipe assembly.

American Ideal-Aire Furnaces For Oilfiring

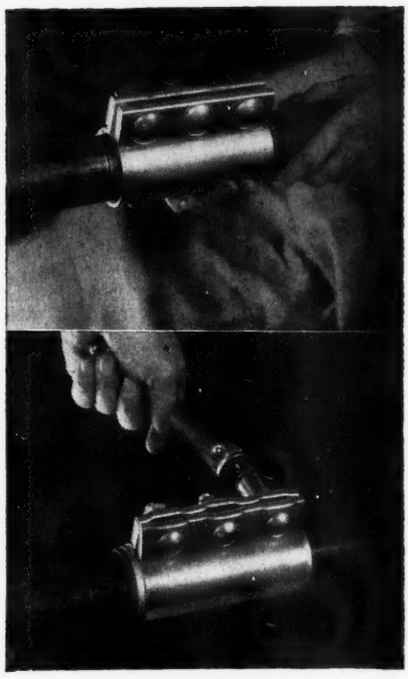
NINE SIZES of furnaces, made by American Heater Co., Mineola, N. Y., are designed for firing with pressure atomizing type oilburners, and rated at bonnet capacities from 82,900 to 365,000 Btu/hr. Register outputs range from 72,000 to 310,000 Btu/hr and additional sizes up to 1,500,000 Btu/hr are available on order.

Units are furnished completely equipped with blower, filters, humidifying unit and blower control. Provision is included to permit circulation of cool basement air during the summer months. The company announces that tests on all models have been completed and production now is underway.

Morris Pipe Clamps For Emergency Repairs

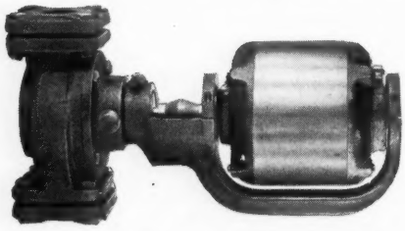
A FLEXIBLE steel band repair clamp, announced by Morris Coupling & Clamp Co., Ellwood City, Pa., snaps over pipe to cover leaks resulting from holes, splits, cracks or pitted corrosion areas. Emergency repair is accomplished without interruption of service with the clamp, which consists of an inner and outer shell and employs a gasket to cover the leak. Several clamps may be butted together to repair long cracks or splits.

A compression type gasket sealed pipe coupling, also announced, permits replacing leaking or corroded sections of pipe and joining them by slipping two of the couplings over pipe ends. The couplings replace collars or unions; may be used on plain or threaded pipe.



Couplings are furnished in standard iron pipe sizes from ½" to 4"; clamps

GLOBE | *Hot Water* **CIRCULATORS**



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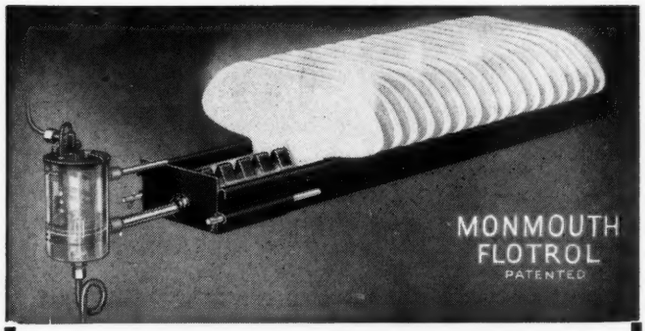

Humidifiers are a popular item with home owners right now—more and more people recognize that proper humidification is essential to healthful heating. For top performance and long dependable service, use Monmouth Flotrol or Micro-Feed models.

All Monmouth Humidifiers are now equipped with brand new design plates, improved in efficiency and durability. We also make gas-operated Humidity Conditioners for all radiator jobs. Details on request.

THE CLEVELAND HUMIDIFIER CO.
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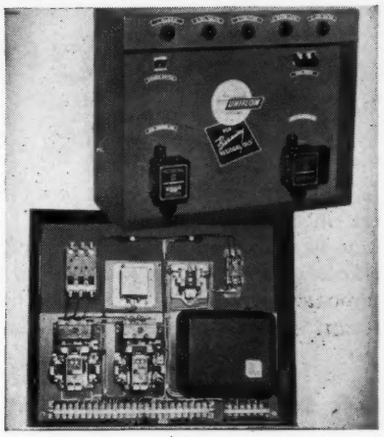
MONMOUTH HUMIDIFIERS

½" to 14". Long length couplings are rated to 500 I.P.S. working pressure; short lengths to 100. Suitable for use on oil, gas, water, air, steam or chemical lines.

Ace Engineering Offers Pre-Wired Control Board

A PREFABRICATED oilburner panel board, announced by Ace Engineering Co., Chicago, Ill., is pre-wired at the factory, making it necessary only to supply power and connect the oilburner to complete an installation. Its steel dead front permits color-coded open type wiring so circuits can be traced easily.



A system of red and green lights shows how the oilburner is operating —a red light indicating danger in the particular operation identified by the marker illuminated. Circuit breakers are employed on the boards, on which any type of controls, including electronic, are available. Partially fabricated panels are held in stock to facilitate prompt assembly of tailor-made units.

Industrial Device Controls Temperature and Humidity

A CONTROL, available in pneumatic or electric types from Minneapolis-Honeywell Regulator Co., Minneapolis 6, Minn., regulates room temperature and humidity in paper, textile and tobacco plants. In the pneumatic model the control contains a series of Brown Instrument flush-mounted pressure gauges to indicate any changes during processing, with the entire controlling and indicating mechanism housed in a locked cabinet. An added feature protects the measuring and controlling elements against lint and dust.

Quick Maker Water Heater Fired With Breese Burner

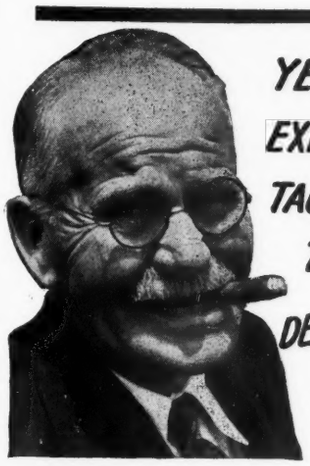
QUINT MFG. CO., Montreal, Canada, is manufacturing an oilburning water heater, fired with a 7" Breese burner, designed to supply hot water when connected to storage tanks ranging in capacity from 20 to 100 gals.

Controls supplied with Quick Maker heaters are Detroit Lubricator or Automatic Products constant level valve and thermostat and a 5" Breese Draft-A-Lite. A clean-out rod is installed on the heater, which has a recovery rate of 29 gph through a 100 degree rise; 35 gph through an 80 degree rise and 46 gph through a 60 degree rise, with insulated boilers.

Scotty Field Draft Control For Ranges, Space Heaters

SCOTTY FIELD, barometric draft control, introduced by Field Control Div., Mendota, Ill., is intended for application to space heaters and ranges. The control is fabricated from 26 gauge blued steel, with a 6" diameter, 10" long tee.

A counter-balanced gate operates in



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These trustworthy gauges eliminate guess work and offer convenient remote readings... as well as assuring greater protection against overflowing oil tanks. Consequently, Levelometer tank gauges save service calls and offer greater customer satisfaction all around. Little wonder, Levelometer is the choice of dealers who insist upon dependable oil tank gauges.

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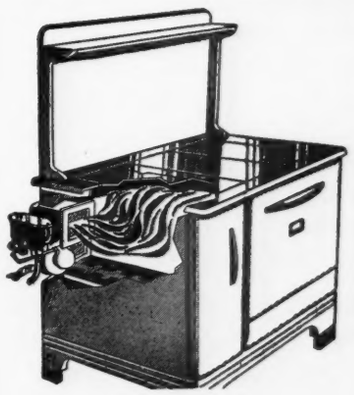

SALES prospects for this modernizing, easily installed oil burner are *all* owners of gas, wood and coal stoves and ranges. Super-Therm fits any size stove, front or rear —will last a lifetime—will not soot or smoke—has automatic safety features. Write now for details and *dealer profit* facts.

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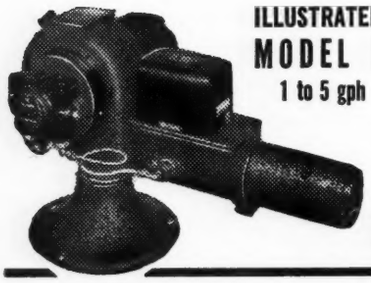
One of the *OLDEST BURNERS* ...one of the *FINEST!*

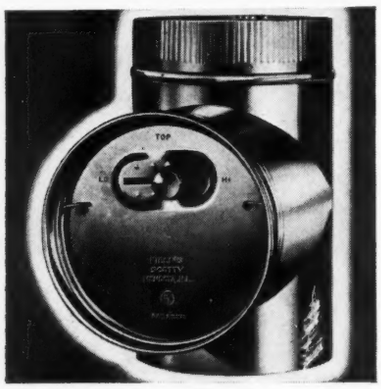


ILLUSTRATED
MODEL L
1 to 5 gph

U. S. oil burners offer much more in performance and fuel economy—for much less in proportionate cost.
One of the oldest manufacturers of oil burners, if not *the* oldest, U. S. has kept abreast or ahead of the times in burner design and mechanical engineering.
3 models are available, 1 to 5 gph, 4 to 8 gph and 7 to 16 gph . . . a range to cover almost any heating specification.

Write, wire or phone for detailed information.

UNITED STATES BURNER CORP., HARTFORD, CONN.



an extended 4-13/16" collar, located beyond the flow of heat and smoke, but recessed to direct air entering the collar against the gate. This feature, plus a friction-free type gate mounting, is designed to afford maximum sensitivity to barometric changes. The gate is adjustable for high, medium or low drafts and revolves in the collar to allow vertical or horizontal mounting.

Hero Fire Extinguishers Portable and Pressurized

A PORTABLE, pressurized Hero fire extinguisher, developed by Bostwick Laboratories, Bridgeport 8, Conn., contains 16 oz. of fluid which is propelled in an 18 ft. steam at a blaze. Operation requires only pulling a trigger on the top of the extinguisher and aiming its stream. Fluid charge consists of 90% carbon tetrachloride, 10% chemicals, with carbon dioxide propellant.

The fluid meets Underwriters Laboratories and U. S. Government specifications and the extinguisher has been certified by an independent testing laboratory as effective against gasoline, fuel-oil, paper, grease, electrical and other types of incipient fires. It is furnished complete with wall bracket, or can be carried in tool or car kit.

Federal FD Boilers For Automatic Firing

FD SERIES OF BOILERS, announced by Federal Boiler Co., Inc., Midland Park, N. J., are offered in three sizes for firing with stokers, gas or oilburners. Designed for junior commercial use, steam ratings are 1500, 1800, 2200 sq. ft.

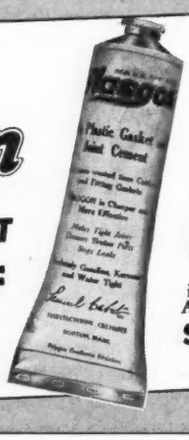
The boilers are SBI rated with ASME construction, featuring 3/8" tube sheets and intermediate tube sheets, 5/16" wrapper sheets and fire box. Tubes are 3" expanded and ball-flared. Steel clean-

out and fire doors are insulated to cut down heat loss and reduce the possibility of damage in shipment. Bases on oilfired models are 12" high; stoker fired, 16" high. This series is announced as a forerunner of a larger group, with ratings up to 10,000 sq. ft. steam, to be introduced during 1949.

Indeeco Oil Preheaters Electrically Operated

ELECTRIC fueloil preheaters, announced by Industrial Engineering & Equipment Co., St. Louis 3, Mo., are being released after five years of field testing. The heaters, featuring full automatic temperature control, are of the electric im-

USE
Plasgon
FOR PERMANENT
LEAKPROOF
JOINTS



Easy-to-use Plasgon is the ideal seal for flanged or threaded joints. Needs no thinning—no heating—is applied direct from the tube. Plasgon resists considerable pressures and heat up to 350°F . . . *stays* proof against steam, oil, gasoline, kerosene and other common solvents. Can be removed with 80% alcohol.

As an adhesive, Plasgon withstands a shearing stress of 200 pounds per square inch. "Sandwich Adhesion" will join metals, glass, rubber and plastics or any porous materials. A Plasgon joint is tough and flexible . . . cannot be dislodged by vibration, shock or jarring.

Write today for free sample and complete information about Plasgon and the "Sandwich Adhesion" joint.

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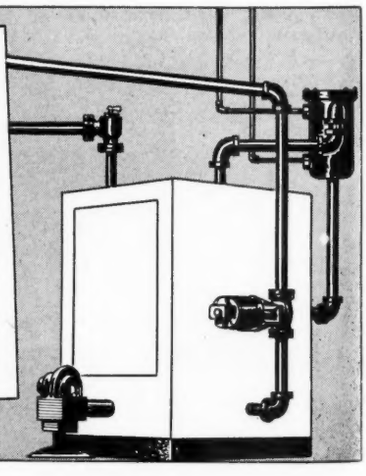
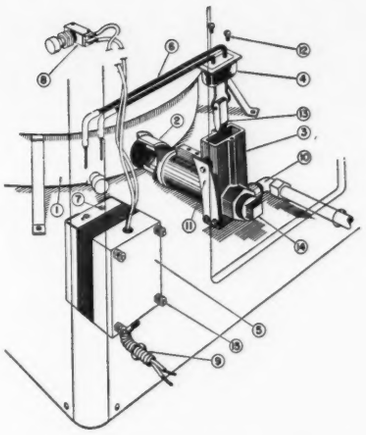


mersion type, built of resistance wire imbedded in refractories. Heating elements are enclosed in seamless steel tubes. Heater tanks are electric arc-welded and provided with 1" inlet and outlet nipples. Outlet nipple is located near the top of the tank, and mounting flanges facilitate placing the heater in its proper location.

Available in a variety of sizes in wattages from 600 to 16,500 watts, all common voltages, the smallest unit heats 4.8 gph through 100° F.; the largest, 132 gph through 100° F. Model AJ thermostat, made by the company, is employed in the preheaters to accomplish automatic temperature control. Current capacity of the thermostat is 4000 watts, 115 volts, A.C. and 5750 watts, 230 volts, A.C.

Reliance Range Burners With Electric Ignition

CONVERSION range oilburners, made by Reliance Products Corp., Portland, Ore., are available with an electric igniter that provides automatic operation and does away with pilot lights. Model 246 horizontal range burner, featuring



the igniter, is started by adjusting with one control the fuel and air ratio, turning on the motor switch to start the fan and pressing the igniter button for 20 seconds. Furnace conversion burners also are offered with the igniter or it can be purchased separately for attachment to space heater burners.

The igniters consist essentially of a housing, igniter element, transformer, and a momentary electric switch. On regular Reliance models the low voltage igniter is mounted in a stainless steel blister on the side of the burner bowl and removed from high combustion chamber temperatures.

Imperial Ball-Bearing Hi-Duty Tube Cutter

A NEW TUBE CUTTER, announced by Imperial Brass Mfg. Co., Chicago 7, Ill., features a ball-bearing action, whereby the tubing being cut rolls on rollers. Rollers have a patented flare cut-off groove to permit removal of cracked flares without wasting tubing. The 6 oz. aluminum alloy tool will cut all sizes of tubing from ⅛" to 1" O.D., inclusive. It contains a retractable locking reamer and has its feed mechanism enclosed as protection against damage.

Junior Walton Humidifier Vaporizes One-half Gph

JUNIOR WALTON humidifiers have been added to the line to accommodate areas between the 2500 cu. ft. serviced by the small models and the 15,000 cu. ft. covered by large industrial models. Manufactured by Walton Laboratories, Inc., Irvington, N. J. and distributed nationally by Abbeon Supply Co., Woodside, N. Y., the new units require no steam, pumps, compressors or return lines. Units can be ceiling-suspended or placed on a table or shelf.

In operation water is fed into the

fueloil & oil heat

BOOK SHELF

BASIC SERVICE TEXT FOR PRESSURE TYPE BURNERS

This manual was prepared by G. T. Kaufman, technical secretary of the Oil Heat Institute of America, and is intended for basic training of installers and service men in residential oil-heating. 216 pages. Paper covers.

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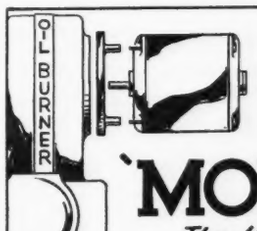

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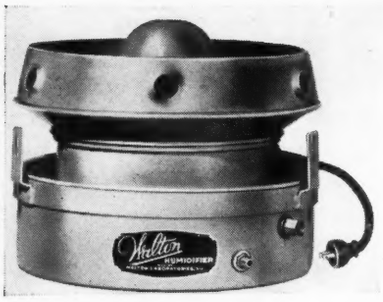
CS75
Underwriters' Lab. MP1454.
The Monarch G-74 Combustion embodies an entirely new Head 12%CO_2. .75 GPH to 2.50 GPH.
Park Oil Burner Mfg., Atlantic City, N. J.



bottom pan of the unit, with water level controlled by a float valve. A hollow copper tube, rotating in the water, forces a thin stream onto a disc revolving at 3450 rpm. This fine sheet of water is hurled onto a circular copper comb, on the bottom of which are small blades which create a turbulence in the air inside the unit. Seeking escape through the portholes in the dome, the air carries with it the finest of the water vapor. Units vaporize better than ½ gph of water.

Silent Sioux Develops New Circulating Fan

A CIRCULATING FAN, developed by Silent Sioux Oil Burner Corp., Orange City, Ia., is designed to be used with any

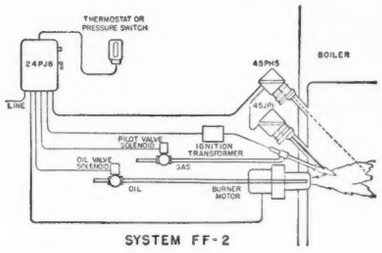
circulating heater with a 6" diameter stack. Only four screws are required to fasten the fan to the back panel, connecting it directly to the stack. It occupies less than one cubic foot, weighs approximately 9 lbs. and eliminates the usual draft regulator.

Fan action recaptures a large portion of stack heat and forces it directly into the space to be heated, through front and side heater louvers and through a special nozzle over the top of the heater. Reduction in stack temperatures of 100 degrees are reported as common after the fan has been installed.

Flame Failure Safeguard For Industrial Oilburners

FOR PROTECTION against hazards of flame failure in industrial oilburner installations, Combustion Control Corp., Cambridge 42, Mass., announces a system for supervising both the pilot gas flame

FULL-AUTOMATIC FLAME CONTROL, GAS PILOT AND OIL BURNER



SYSTEM FF-2

and the main oil flame of fully automatic oilburners. Equipment consists of an electronic flame rod, photoelectric scanner and programming control. The flame rod feels the gas pilot flame, transmits failure to the programming control which shuts down the burner before the main oil valve opens. The oil flame is monitored by the photoelectric scanner, containing both phototube and amplifier tube.

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CLASS 50 LIGHT OIL PUMPS
DIRECT DRIVE FOR
#1 TO #5 OILS INCLUSIVE

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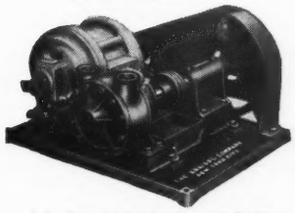
CLASS 60 HEAVY OIL PUMPS
REDUCTION DRIVE
FOR HEAVY OIL



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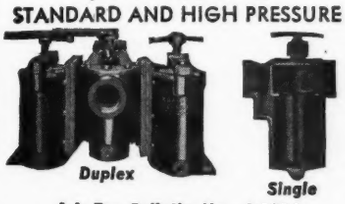
SINGLE AND DUPLEX
QUICK CLEANING
STANDARD AND HIGH PRESSURE



Duplex Single

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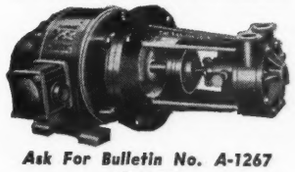
DIRECT DRIVE
FOR EXCLUSIVE USE WITH
LIGHT OILS AND SOLVENTS



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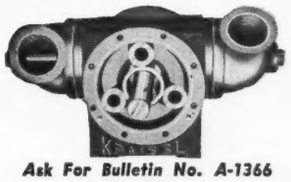
CLASS 80 TRI-ROL PUMPS
INTERCHANGEABLE SERVICE
BOTH LIGHT AND HEAVY OILS
TANK TRUCK AND BULK STATION



Ask For Bulletin No. A-1366

295 WILLIAMS AVE.

KRAISSL THE KRAISSL COMPANY
HACKENSACK, N. J.

John C. Barnes has been named vice president for sales, eastern division, Rittling Corp., Buffalo, N. Y., manufacturers of heating equipment. Mr. Barnes recently resigned as vice president for sales, National Radiator Co., after eight years' affiliation.

Stan Furber of the Twin Cities sales staff, Minneapolis-Honeywell Regulator Co., Minneapolis, Minn., recently won a two-week cruise to Caribbean ports in the company's "Time to Climb" sales contest. Winners in each region were awarded a trip to Minneapolis for a week-end of sightseeing and entertainment, with an opportunity to win the cruise as a grand prize.

H. Wilkinson, C.M.G., London, has been elected a director of the "Shell" Transport and Trading Co., Ltd., British holding company in the Royal Dutch Shell group. He is president and a director, Shell Caribbean Petroleum Co. (Inc.) and Asiatic Petroleum Corp., and a director of Shell Union Oil Corp.

A. K. Foulds, patent counsel for two subsidiaries, American Radiator & Standard Sanitary Corp., Pittsburgh, Pa., has been named patent counsel for the entire corporation. He succeeds C. G. Heylmun, retired.

Milton R. Paulsen, former director of engineering research, Heil Co., Milwaukee, Wis., has been appointed associate professor of heating, Milwaukee School of Engineering's Refrigeration, Heating and Air Conditioning Institute. *Charles J. Berthet,* an instructor for the past nine months, is now acting head of the heating department and associate professor of heating. *Ernest S. H. Baars* is the new head of the refrigeration department and *Edward R. Zieve* has joined the faculty as associate professor of air conditioning. The School entered its 46th year with the opening of the fall term.

Norman J. McGaw, vice president, Shell Oil Co., has been elected to the board of directors and assigned new duties. He will move from San Francisco to New York, where he will organize and direct a new department concerned with economic studies of the oil industry in general, as well as with Shell's own planning and major development projects. Mr. McGaw joined Shell as a clerk in 1925.

in the

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Designed to provide synchronized air and oil control for manually operated burners.

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BOX E • STATION A
BERKELEY, CALIFORNIA

Q. We are contemplating to install a pressure burner for approximately 18 gph of No. 2 oil.

We would appreciate finding out the proper size blast tube and fan with a motor of 1725 rpm.

Thanking you in advance, I remain.
C.J.R., Brooklyn.

A. There are no set rules for the sizes of the blower wheels and gun tubes of pressure burners for different gph rates. Each burner manufacturer uses the sizes which he finds gives the results he desires. A burner for a certain maximum gph rate may have to have an exceptionally large blower wheel, for example, because the gun tube is of exceptionally small diameter and is blocked more than usual by the ignition system parts and air-handling parts in the gun tube. Using different air-handling parts in the gun tube changes the maximum gph rate for which the burner can be rated. One model, for example, can be rated at 15 gph when fitted with the air-handling parts the manufacturer considers standard, but the use of special parts permits firing the burner up to 18 gph, and if still other parts are used for certain reasons, the burner gives a maximum fire size of 11 gph.

This may help you. The author of one popular textbook on burners finds that a 4″ gun tube roughly fits a maximum gph rate of 6.0, and jibes roughly with a blower wheel 6″ in diameter with 3″ blades. On that basis, a 6″ gun tube would serve roughly for up to 13.5 gph, for the velocity through it would equal that of a 4″ tube serving for 6.0 gph firing rate.

The 15 gph model of one well-known burner manufacturer has a 6¼″ gun tube and is powered by a ½ hp. motor. Another burner model, made by a different company, is rated at up to 19 gph; the gun tube is 6″ size, blower wheel is 9″ diameter and has 4½″ blades, and motor size is ½ hp. A 15 gph burner of still another make has a 6½″ gun tube, a 9½″ x 5½″ blower wheel, and a ¼ hp. motor.

Before selecting the burner, you will have to make up your mind about whether or not you will give the fire auxiliary air by natural draft. Using air ports in the front wall or floor of the firebox, you can give the fire auxiliary air and use a relatively small burner. But you will have to use a larger burner if you want all the air fed to the flame to come through the gun tube of the burner; in that case, the blower must be large enough to provide all the air needed for the 15 gph flame. As using auxiliary air, fed only by natural draft or chimney draft, has certain disadvantages and as a larger burner costs more, some engineers declare that it is far better on a high quality installation to install a burner so large that the blower wheel can supply all the air needed for combustion.

* * *

Q. Will the addition of a circulator to an overloaded hot water boiler reduce the oil consumption? We have always believed it would, but now learn some manufacturers rate their boilers at less if circulators are used with them.
P.S.I., Herkimer, N. Y.

A. Your first impression was correct in that adding a circulator to an old hot water system, suffering from sluggish circulation and therefore running high fuel bills, is good practice; usually it improves the heating greatly, or cuts the oil consumption, or does both. It is outstandingly correct to improve old gravity-circulation hot water heating plants by adding circulators to them.

Don't worry about boiler manufacturers' rating their boilers to carry fewer square feet of forced-circulation hot water radiation than the gravity-circulation loads listed for the boilers. This does not apply to modernization jobs; it applies only to heating systems which are entirely new and in which fewer square feet of hot water radiation are used because forced-circulation is used.

For a new home which has a net heat loss of 120,000 Btu per hour in zero weather, for example, you could install a total of 500 sq. ft. of steam radiation, or 600 sq. ft. of forced-circulation hot water radiation, or 750 sq. ft. of gravity-circulation hot water radiation. The boiler size would be the same. Only 600 sq. ft. of forced-circulation hot water radiation would be needed (compared to 750 sq. ft. of gravity-circulation hot water radiation) because on the forced-circulation basis each square foot of radiation gives more heat and carries more load than with gravity circulation. Many engineers figure 200 Btu per hour from a square foot of forced-circulation

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hot water radiation, but only 160 Btu per hour from a square foot of gravity circulation hot water radiation. However, the heat loss of a new or old building is the same regardless of which type of radiation is used in the building. Adding a circulator to an old system often permits adjusting the oilburner for a lower firing rate. By overcoming the sluggish circulation of the old system, the circulator makes it easier for the oilburner to heat the house.

* * *

Q. Is brass suitable for burner nozzles?

I.M.K., Washington, D. C.

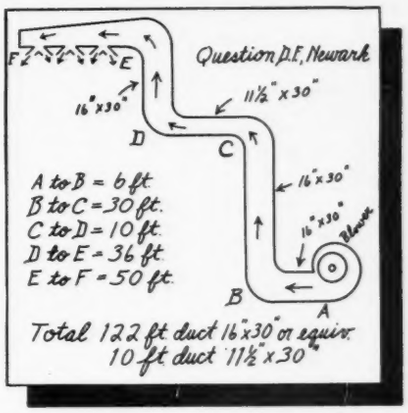
A. Not many years ago, many of the important oilburner manufacturers believed brass was suitable for oilburner nozzles and fitted their burners with brass nozzles. There is no doubt that these nozzles worked fairly well for one, two, or even three years, and that regardless of the poor atomization and oversize flames caused by wear, many of the brass nozzles stayed in burners for five years or longer.

Today, however, seemingly the general belief in the industry is that brass does not wear well enough for use in making the parts of pressure nozzles subjected to greatest wear. Stainless steel is used for these parts, or for entire nozzles, by many manufacturers. We assume your question refers to pressure atomizing nozzles for use at about 100 lbs. pressure. Since the nozzle wear depands on the pressure, the answer to your question is different if you have in mind considerably higher or lower pressure.

* * *

Q. As tinsmiths making lots of ducts for air conditioning and forced warm-air plants, we've always had questions about reducing duct size for a small part of the run, without reducing the duct size for the main part of the run. The job we are working on now brings the thing to a head and shows clearly what puzzles us.

Our drawing shows this 132 ft. duct system in which 122 ft. of the run is based on 16" x 30" duct, but 10 ft. of the run is of 11½" x 30" size because a larger duct cannot be put into the particular ceiling space.



Here's the question: Since part of this duct is as small as 11½" x 30", do you gain anything at all by making the rest of the duct larger than this? As we tinsmiths see the thing, it would be just as well in every way to make all of the duct 11½" x 30". Kindly avoid higher mathematics when you answer this letter.

D. F., Newark.

A. The electrical analogy in the upper part of our diagram indicates that with 2.0 voltage drop suitable for a given motor circuit, 1.0 volt drop could be arranged in 122 ft. of the wiring, and 1.0

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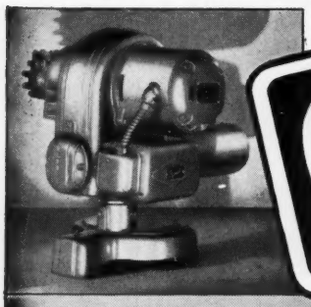

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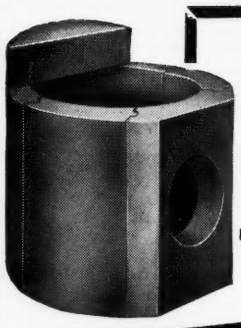

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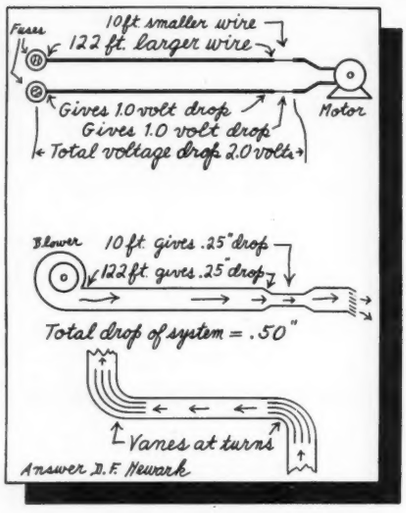


volt drop could be in 10 ft. of smaller wire which is used for some special reason in the circuit. But making the entire 132 ft. run of the smaller wire, plainly would give a voltage drop far in excess of the 2.0 volts judged suitable in the first place. Thus a short length of small wire can be used in an electrical circuit made mainly of larger wire, even though making the entire circuit of the smaller wire would be unsatisfactory.

The same principle applies to a duct system, as our next diagram shows. There can be high resistance to air-flow for a short length of the duct; this resistance can be so high that on a per-foot basis it is not suitable for the entire duct. Where the duct is small for 10 ft., for example, the pressure drop for the 10 ft. may be .25" (water in a U-tube gauge) as the diagram shows. Yet, since the entire system including the blower are engineered for a total pressure difference of .50", all of the remaining 122 ft. of duct may give only a pressure drop of .25"

Much would be gained in the duct system you show by using the three vanes we show in each of the elbows at the ends of the small section of duct.

* * *

Q. When should twin nozzles be used in large pressure burners?

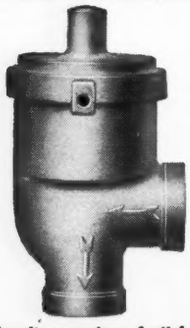
D.L.O., Park Ridge, Ill.

A. For firing rates above about 7.0 gph, certain experts prefer twin nozzles, declaring that low-capacity nozzles atomize more finely than high-output nozzles and therefore produce better combustion. The use of combustion testing instruments on the installation you have in mind, together with careful observation of the flame, should reveal to you one or two nozzles are better.

Q. What is the best stack temperature to carry on domestic heating plants?

P.S.I., Herkimer, N. Y.

A. In selecting the sizes of new boilers to be fired by power burners, many equipment dealers aim for stack temperatures somewhat below 600°. Certain dealers boast of their new installations giving stack temperatures as low as about 475° and declare this produces exceedingly low oil consumption without giving any disadvantages. Yet, a stack temperature below some certain point (which appears to be different for different installations as it depends on the characteristics of the installation) invites trouble. There are installations which give stack temperatures below 400° and on which, because of this, the chimney draft is low enough to give trouble, and water dirtied by soot and tar-like substances drips from the smoke-pipes and causes complaints. The water vapor in the chimney gases condenses and sometimes gives trouble.



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Permits pumping of oil but closes to prevent syphoning in case of suction line break.

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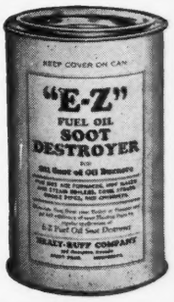

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Oilheating Trends

(*Continued from page 11*)

used, the comparisons would be: oil 9.8¢ per therm, gas 6.4¢, handfired coal 6.8¢, and stoker fired coal 5.6¢. When relative efficiencies are taken into account the oil and gas ratios would not change much, but coal costs should be raised since coal efficiency is considerably lower than that of the other fuels. In any event it is obvious that in the East gas is still considerably more costly than oil, while in most Midwest cities the reverse is true.

COMPARATIVE FUEL COSTS

	No. 2 Oil	*Gas*	*H. F. Coal*	*Sto Coal*
New Eng.	12.7	.71	$22	$17
Mid-Atl.	12.4	.82	20	15
Midwest	13.5	.64	17	14
Pac. N. W.	12.0	.61	17	..

BURNER SERVICE BY MAJORS: Penetration by major oil companies into servicing or selling oilburners in various markets is definitely noticeable but not yet of important consequence. From New England half of the reporting companies say that one or more majors now render burner service in their cities, with percentage of mentions in this order: Shell 36%, Esso 21%, Socony 20% and Cities Service 7%. From Mid-Atlantic areas 85% of reporting dealers say that some service in their markets is rendered by majors, in this order of times mentioned: Esso 69%, Atlantic 22%, Sinclair (inc. Sherwood) 19%, Cities Service (including Petrol) 16%, Socony 9%, Shell 9%, Amoco 8% and Gulf 6%.

Midwest reports show majors doing some burner service in 26% of markets heard from, with relative significance of companies in this order of times mentioned: Shell 11%, Standard 6%, Pure 5%, Skelly 4%.

A measure of the unimportance to the oilheating industry of the amount of total burner service that is rendered by major oil companies is seen in the dealer estimates of what the majors do: New England 1.5%; Mid-Atlantic 7.4%; Midwest 1.3%.

In addition to rendering burner service a few majors sell oilburners. In New England 42% of the reporting dealers mention majors selling in their cities, in this ratio of times mentioned: Esso 36%, Cities Service 7%, Shell 6%. Mid-Atlantic delaers report Esso selling burners in 59% of cities heard from, Cities Service in 9%, Socony in 8%, Sinclair in 7%, Amoco in 3% and Shell in 2%. In the Midwest the only companies mentioned as selling burners are Skelly and Shell, each getting a few mentions. Shell does not regularly market a burner, which would bring a probable conclusion that dealers are aware of burners emphasizing the Shell combustion head being pushed in competition with them, or that burners are being sold by local marketing companies financially controlled by Shell.

◈

Lincoln Pierce of the New York sales office, American Radiator & Standard Sanitary Corp., Pittsburgh, Pa., has been promoted to manager of the Boston sales office. *Nelse Hervan,* of the Boston sales office, simultaneously advanced to assistant sales manager. Mr. Pierce, who has been with the company for ten years, received his sales training office in the Boston office. Mr. Hervan has been with the Boston office since 1929 and with the company since 1910.

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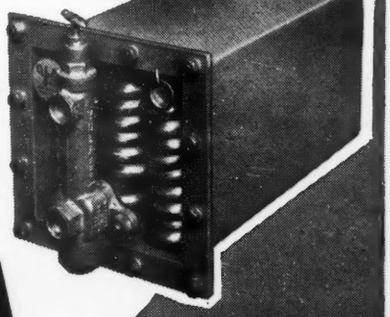

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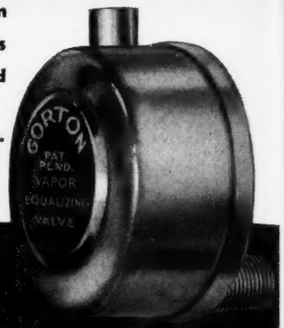

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DEGREE DAY TABLES

ONE MONTH ONLY					SEASON TO DATE			
	November		Percent		(Sept. 1 to Nov. 30)			Percent
Normal	1947	1948	Change*		Normal	1947	1948	Change*
756	881	514	— 32.0	Albany	1282	1328	1036	— 19.2
393	488	304	— 22.7	Atlanta	535	544	457	— 14.6
531	561	363	— 31.6	Baltimore	795	730	656	— 17.5
651	715	461	— 29.2	Boston	1087	1016	878	— 19.2
747	810	536	— 28.3	Buffalo	1282	1167	1107	— 13.6
709	855	608	— 15.3	Chicago	1127	1136	1064	— 5.8
613	653	456	— 25.6	Cincinnati	939	811	794	— 15.4
688	735	484	— 29.7	Cleveland	1134	986	1004	— 11.5
298	412	318	+ 6.7	Dallas	373	421	385	+ 3.2
721	903	787	+ 9.2	Denver	1260	1250	1202	— 4.6
768	914	708	— 7.8	Des Moines	1224	1174	1110	— 9.3
753	835	580	— 22.9	Detroit	1249	1163	1116	— 10.7
768	846	625	— 18.6	Grand Rapids	1327	1174	1123	— 15.4
691	759	547	— 20.8	Hartford	1165	1155	1051	— 9.8
940	1117	939	— 0.1	Helena	1829	1905	1840	+ 0.6
162	182	152	— 6.1	Houston	189	182	175	— 7.4
663	772	543	— 18.1	Indianapolis	1027	970	962	— 0.6
599	749	563	— 6.0	Kansas City	891	866	814	— 8.6
110	132	101	— 8.2	Los Angeles	158	147	143	— 9.5
550	633	449	— 18.4	Louisville	802	765	730	— 9.0
788	938	691	— 12.3	Milwaukee	1317	1291	1159	— 12.0
943	1110	896	— 4.9	Minneapolis	1590	1536	1384	— 12.9
147	140	102	— 30.6	New Orleans	170	372	199	+ 17.1
600	631	380	— 36.7	New York	925	841	689	— 25.5
741	886	752	+ 1.4	Omaha	1147	1134	1130	— 1.5
544	598	376	— 30.9	Philadelphia	815	783	665	— 18.4
656	773	462	— 29.6	Pittsburgh	1049	1010	920	— 22.9
792	771	607	— 23.3	Portland, Me.	1430	637	1168	— 18.3
540	498	593	+ 9.8	Portland, Ore.	947	840	1021	+ 10.7
675	703	458	— 32.1	Providence	1142	1001	877	— 23.2
558	734	499	— 10.6	St. Louis	812	893	758	— 6.7
712	890	835	+ 17.3	Salt Lake City	1184	1278	1214	+ 2.5
242	291	256	+ 5.8	San Francisco	504	537	568	+ 12.7
965	1034	827	— 14.3	Sault Ste. Marie	1860	1699	1642	— 11.7
558	572	602	+ 7.8	Seattle	1104	1087	1172	+ 6.1
721	850	605	— 16.1	Toledo	1188	1175	1129	— 4.9
558	558	389	— 30.1	Washington	855	718	699	— 18.3

*Compared with normal.